

2601
5675

THE ACHIEVEMENT MOTIVE IN HIGH SCHOOL BOYS



NATIONAL COUNCIL
OF EDUCATIONAL RESEARCH
AND TRAINING

The concept of motivation has great significance in understanding human behaviour as well as in changing it. With the application of psychology in the fields of education and industry it has become evident that motivation is crucial in teaching and in learning and for any work performed at high level of excellence. However, in spite of the popularity of theories of motivation not much work had been done in this area until the publication of the book "Achievement Motive" in 1953 by McClelland. In his later work, "The Achieving Society", McClelland pointed out the role of this motive for the development of society and particularly for economic development.

In 1963, two years after the publication of McClelland's "The Achieving Society" a proposal was submitted to the National Council of Educational Research and Training that a study of the achievement motive in school boys be undertaken, with a view to understanding its role in scholastic achievement. Educationists in our country have been concerned about the large incidence of failure in secondary school examinations and the sub-standard classroom performance of students in general. It is believed that part of this may perhaps be due to the low level of motivation. Accordingly, it was proposed to study the relationship between the achievement motive and performance in school examinations as well as the achievement motive in the context of our culture. It was also proposed that a method of training teachers in achievement motivation should be evolved and it should also be observed whether such training increases the level of achievement motive of the pupils, thereby influencing their scholastic performance.

The study was sponsored jointly by the National Council of Educational Research and Training and the US Department of Health Education and Welfare. The reports presented in this monograph tell the story of this work. Soon after the publication of McClelland's "The Achieving Society", a number of studies were conducted in this area, but in the field of education the present study is a pioneering venture.

The first describes the development of a test of Achievement Motivation using the projective technique. An attempt has been made to assess the level of achievement motivation in secondary school boys in Delhi with the help of this technique. It is difficult to compare the findings of this study with those conducted in other countries because of differences in sampling procedures and in the techniques of testing. Even while allowing for these differences, it is

✓ 2601
~~5675~~



THE ACHIEVEMENT MOTIVE
IN HIGH SCHOOL BOYS

EVITOM TWMLEVENIOM

8Y08 10040818718

PROJECT STAFF

Dr. Shib K. Mitra	Director
Dr. Prayag Mehta	Principal Investigator
Kuldip Kumar	Research Associate
Balram Sharma	Research Associate
H. M. Kanade	Senior Research Assistant

Research Monograph 1

1001 1001
0281 1001

The Achievement Motive in High School Boys



2601
S.L.E



NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

January 1969
Pausa 1890

© *National Council of Educational Research and Training*, 1969

31.12.2007
12937

Rs. 11.00 or 18sh 6d or \$ 2.50.

PUBLISHED AT THE PUBLICATION UNIT, 9, EASTERN AVENUE, MAHARANI BAGH, NEW DELHI-14
BY P. N. NATU, SECRETARY, NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING
AND PRINTED BY P. CHAKRABERTTY AT THE EKA PRESS, 204/1 BARRACKPORE TRUNK ROAD,
CALCUTTA-35.

FOREWORD

I have pleasure in introducing this monograph on "The Achievement Motive in High School Boys" brought out by the NCERT in the series of research studies, which have been planned for publication. The publication of research studies in the significant fields of education has been a long-felt need in our country. There are no means of knowing how practical or concrete and how helpful towards the attainment of our set aims, are the results of our total educational endeavour, unless our field work is supplemented by periodical investigations of the fundamental processes of learning and thinking. Educational effort, like efforts in other important fields, proceeding merely on the basis of pragmatic theories which temporarily hold the field, is hardly likely to yield beneficial and lasting results. Major areas of research require to be identified, projects and schemes substantiated by instructed inquiries, and a trained body of research workers encouraged to grapple with the demands of growing educational research.

It is obvious that NCERT has a pivotal part to play in this important undertaking. It has, accordingly formulated a research programme, guided by the Board of Educational Studies, which helps to foster educational research in all the institutions of learning, including the departments of the N.I.E. Under the International Co-operative Research Programme of the U.S. Office of Education, NCERT has undertaken nine research projects on vital subjects. The findings of one of these are presented in this volume.

The monographs that will follow the present one cover other important fields of educational research and they will be published on the same pattern. They would have more than served their purpose if they reach all the centres of learning in this country and their findings are applied and tried in practical day-to-day situations and are found valuable in the evaluation of the work in which our educators are engaged.

It is our hope that this publication—and the ones that are to follow it—will be found useful by all those who contribute to the general pool of our educational effort and to the building up of a sound educational system, be they administrators or research workers, practising teachers or interested students.

P. N. KIRPAL

Director

*National Council of Educational
Research and Training*

New Delhi
18 January 1968

ACKNOWLEDGMENTS

The Principal Investigator and author wishes to acknowledge the contributions of several persons toward the development of the research reported here. He is particularly indebted to Dr. Shib K. Mitra, who first proposed this research and later gave it his administrative and academic support and guidance. Dr. Mitra made numerous suggestions which have been incorporated in these studies. Kuldip Kumar, Bal Ram Sharma and H. M. Kanade were associated, as the Project Staff, with all the phases of both the studies. The fruitful completion of the present work owes much to their competent and invaluable assistance.

S. C. Gupta and A. C. Sogani carefully handled the calculations. M. B. Golhar planned and processed a part of the data at Kanpur through the kind courtesy of the Director, Computer Centre, Indian Institute of Technology. Another part of the data was processed at the Computer Centre of the Department of Social Relations, Harvard University, Cambridge, U.S.A. Special thanks are due to Prof. David C. McClelland, who made the funds available and to David G. Winter and Harry Lasker who planned and processed the data.

Vinod Kumar helped to maintain and run the project office throughout. He, with R. P. Grover in the earlier part and with M. L. Grover later efficiently carried the heavy load of secretarial and typing work.

The survey was carried out on Class IX boys of 32 higher secondary schools of Delhi, while the experiments in the second part of the project were carried out on Class IX boys of seven higher secondary schools at Jaipur. The investigations were made possible by the ready cooperation of the respective Directors of Education, the officials of the Department of Education and the principals and teachers concerned, and above all the boys. Thanks are specially due to the seven school principals at Jaipur, and to those teachers who were trained during the experiments and who enthusiastically carried out the four-month programmes in their classrooms.

The responsibility for whatever has been reported, and for any possible shortcomings, rests solely with the Principal Investigator and author.

PREFACE

The concept of motivation is of great importance in understanding human behaviour as well as in changing it. It is also a difficult concept. Although, historically, the study of motivation goes back to the early years of this century, it became popular only with the work of McDougall and Freud, and later, with the development of the theories of learning it came to occupy a central position. When psychology began to be applied to education and industry, it became evident that motivation is crucial in teaching, in learning and for that matter in doing any work with any degree of excellence. However, in spite of the popularity of the theories of motivation, not much conceptual clarity was obtained until McClelland published his book *The Achievement Motive*, in 1953. In this book, McClelland not only indicated a method of identifying one particular motive, but clearly raised the problems involved in developing a theory of and a method for the measurement of motives. It is perhaps not an accident that McClelland identified the achievement motive and developed a method for measuring it. The historical circumstances and the social situation after the Second World War perhaps demanded an emphasis on the achievement motive. In fact McClelland himself soon pointed out the role of this motive in the development of society, particularly economic development. This book of McClelland, called *The Achieving Society*, has since received much greater attention than his earlier work.

It was in 1963, two years after the publication of McClelland's *The Achieving Society*, that a proposal was placed before the Council for studying achievement motive in Indian school boys with a view to understanding its role in scholastic achievement. We in the Council have been concerned over the large incidence of failure in secondary school examinations and the sub-standard performance in general. Part of this is perhaps due to a low level of motivation. Accordingly, it was proposed that we might try to find out the relationship between the achievement motive and examinations and study the achievement motive in the context of our culture. It was also proposed that we might try to develop a method of training achievement motivation in teachers and see whether such training increases the level of the achievement motive in the pupils and thereby influence their behaviour in the matter of scholastic performance. This proposal was accepted by the Council and the U.S. Department of Health, Education and Welfare. The report presented here by Dr. Prayag Mehta, the Principal Investigator, tells the story

of this work. Since 1961, when McClelland published his *The Achieving Society*, a number of studies have been conducted in this area. But in the field of education ours is a pioneering venture.

Two studies are reported here. The first study describes the development of a test of achievement motivation on the lines of McClelland's work. Using a projective technique an assessment of the level of this motivation in secondary school boys in Delhi has been attempted. An assessment of the level of achievement motivation in absolute terms is difficult. It is difficult also to compare the findings of our study with those of studies done in other countries because of differences in sampling procedure and in the technique of testing. Making adjustments for these differences, it is interesting to note that the achievement motivation in our schoolboys compares favourably with that in some advanced countries. In the first study, one also finds some of the cultural facts of achievement motivation, like its being higher in the relatively lower socio-economic group than in the middle and its relation with certain kinds of occupations. Such findings raise further questions about how our children are brought up in different strata or classes of society. The first study also gives the relationship of achievement motivation with examination results. It is again interesting to note that the correlations are not high. But some of these seem to compare favourably with the correlations of intelligence tests with examination marks. The contribution of achievement motivation to learning is, however, neither proved nor disproved. The results point to the need for further investigation.

In the second study in this report, the results of our experiment of training teachers in achievement motivation and its resultant effects on students' motivation and their performances have been presented. It should be of interest to teacher educators to note that the teachers' level of achievement motivation can be raised by suitable training and that teachers like this training very much. Though there is evidence that as a result of such training the performance of students under these teachers seems to improve, it is not conclusive. The study should now be replicated in another State. The factors contributing to the improvement in the students' performance could have been, among other things, more than just the achievement motive. It is, however, a matter of great satisfaction that a State government, the Government of Rajasthan in the present case, could accept the idea of a scientific experiment in their schools. We should like to place on record our deep sense of gratitude for the excellent conditions provided to us for conducting the experiment reported in Study 2 and for creating the necessary climate which was so very essential for enlisting the cooperation of schools and teachers.

These studies required a lot of painstaking work, planning, organization and motivation on the part of the research team. Though it was not so visualized in the original plan, the researchers, out of sheer interest in their work, did many other things like the development of an objective test of achievement motivation, about which also we find interesting results in the report. It is, therefore, with added pleasure that I record my appreciation of the efforts of the research team, which included Dr. Prayag Mehta, the Principal Investigator, K. Kumar, Bal Ram Sharma and H. M. Kanade.

SHIB K. MITRA

*Project Director and Head
Department of Psychological Foundations*

Abbreviations in the names of journals

The following abbreviations have been used in the names of journals cited in the references

<i>Abnorm.</i>	Abnormal
<i>Amer.</i>	American
<i>Br.</i>	British
<i>Consult.</i>	Consultation
	Consulting
<i>Edu.</i>	Education
	Educational
<i>Exp.</i>	Experiment
	Experimental
<i>J.</i>	Journal
<i>Monog.</i>	Monograph(s)
<i>Per.</i>	Personality
<i>Psychol.</i>	Psychology
	Psychological
<i>Soc.</i>	Social
<i>Sociol.</i>	Sociological
<i>Res.</i>	Research
<i>Rev.</i>	Review

CONTENTS

FOREWORD	..	..	..	..	v
PREFACE	..	..	..	..	vii
ACKNOWLEDGEMENTS	..	..	..	..	vi

Study 1

THE ACHIEVEMENT MOTIVE IN HIGH SCHOOL BOYS

CHAPTER	<i>Page</i>
1 INTRODUCTION	1
2 DEVELOPMENT OF INSTRUMENTS	8
3 THE ACHIEVEMENT MOTIVE IN HIGH SCHOOL BOYS ..	33
4 NEED ACHIEVEMENT AND SCHOOL PERFORMANCE ..	67
5 NEED FOR ACHIEVEMENT AND PUPIL SCHEMA OF ACHIEVEMENT DEMANDS	80
6 ACHIEVEMENT MOTIVATION INVENTORY	97
7 SUMMARY AND CONCLUSIONS	113

Study 2

AN EXPERIMENT IN MOTIVATION TRAINING

1 INTRODUCTION .. .. .	..	..	..	..	155
2 MOTIVATION TRAINING .. .. .	..	..	..	..	159
3 A BRIEF COURSE IN ACHIEVEMENT MOTIVATION ..	..	..	..	..	169
4 <i>n</i> ACHIEVEMENT AND PERFORMANCE IN EXPERIMENTAL AND CONTROL SCHOOLS .. .. .	..	..	..	..	254
REFERENCES .. .. .	..	..	..	..	119
APPENDICES .. .. .	..	..	..	..	123
LIST OF TABLES (STUDY ONE) .. .. .	..	..	..	..	xii
LIST OF FIGURES (STUDY ONE) .. .. .	..	..	..	..	xv
LIST OF TABLES (STUDY TWO) .. .. .	..	..	..	..	xvi
LIST OF FIGURES (STUDY TWO) .. .. .	..	..	..	..	xvi
LIST OF ABBREVIATIONS .. .. .	..	..	..	..	x

LIST OF TABLES

STUDY ONE

TABLES	PAGE
2.1 Distribution of Ss according to picture sets	11
2.2 Results on Criteria of Acceptance of Cues for the Thematic Apperceptive Measure of <i>n</i> Achievement ..	16
2.3 Information on Criteria for Six Selected Cues used in the Survey	17
2.4 Percentage Distribution of Categories, UI, TI and AI for all Sets of Cues and of Sub-categories for the AI Stories	19
2.5 Inter-scorer Agreement in Coding of Open-ended Interview Responses	22
2.6 Dispersion of the Scores on each Open-ended Item ..	23
2.7 Dispersion of the Scores on each Ladder Item ..	24
2.8 Rank Difference Correlations between the Scores of Ladder and Open-ended Items	25
2.9 Frequency Distribution of the Discrepancy Scores on Ladder Items	26
2.10 Frequency Distribution of the Discrepancy Scores on Open-ended Items	26
2.11 Item Arrangement in the Revised Interview Schedule ..	27
2.12 Discrimination and Difficulty Values of Inventory Items..	30
2.13 Frequency Distribution of Difficulty Values of Accepted Items: Form AB	31
2.14 Correlations Between the AMI and <i>n</i> Achievement ..	31
3.1 <i>n</i> Ach Scoring Reliability	36
3.2 Frequency Distribution of <i>n</i> Ach Scores	37
3.3 Percentage Distribution of <i>n</i> Ach Characteristics ..	38
3.4 Means and Standard Deviations of <i>n</i> Achievement Scores in Four Countries	40
3.5 Mean <i>n</i> Achievement Scores for Schools by their Achieving and Socio-economic Status	43
3.6 Mean <i>n</i> Ach by Geographical Location of Schools ..	44
3.7 Mean <i>n</i> Ach by School Achieving Status	44

TABLES	PAGE
3.8 Complete Analysis of Variance in Mean n Ach by Socio-Economic Status	45
3.9 Mean n Ach by Socio-Economic Status of Schools ..	46
3.10 Mean n Ach by School SES and AS	46
3.11 Mean n Ach Scores for Different SES Classes ..	47
3.12 Analysis of Variance in n Ach Scores by Pupils SES ..	48
3.13 Mean n Achievement Scores and Standard Deviations by Fathers' Income Groups	49
3.14 Analysis of Variance on n Achievement Scores by Fathers' Income Groups	49
3.15 Pupil's Mean n Ach Scores by Fathers' Educational Level	50
3.16 Complete Analysis of Variance in n Ach Scores by Fathers' Educational Level	50
3.17 n Ach Mean Differences by EL Groups	51
3.18 n Ach Mean Differences by Fathers Educational Levels ..	52
3.19 Mean n Ach Scores for Fathers' Occupational Groups ..	53
3.20 Analysis of Variance in n Ach Scores by Fathers' Occupational Groups	53
3.21 t -Values of n Ach Mean Differences by Fathers' Occupational Groups	54
3.22 Mean n Achievement in Lower Middle Class Boys by Fathers' Educational Level	55
3.23 Mean n Ach of Boys with Fathers of Low EL, by Fathers' Occupational Groups	56
3.24 Analysis of Variance in n Ach Scores by Age ..	57
3.25 Contingency Table of School SES and TI Scores ..	58
3.26 Contingency Table of SES and TI Scores	59
4.1 n Achievement and School Performance: Intercorrelation Matrix (Product-Moment)	69
4.2 Correlation Matrix of Academic Performance and n Achievement Variables	70
4.3 Product-Moment Correlations of Academic Achievement with n Achievement and Intelligence by School AS and School SES	71
4.4 Ordinary (Product-Moment) and Partial Correlations between n Achievement, Intelligence and School Performance	72

TABLE

PAGE

4.5	Median Performance by Fathers' Occupation and <i>n</i> Ach Groups	77
4.6	Mean Academic Performance by <i>n</i> Ach and Fathers Educational Level	78
5.1	Pupil Perception of Peers', Teachers' and Fathers' Expectation of his Success: Variables	81
5.2	Pupil Schema Mean Scores	82
5.3	Intercorrelations Matrix: Pupils' Perceptions of Others' Expectations of Them and Their Own Expectations	83
5.4	Pupil Schema and Pupils' Social Class	84
5.5	Pupil Schema and Schools' Social Class	85
5.6	Pupil Schema and <i>n</i> Achievement	85
5.7	<i>n</i> Achievement and Perception of Expected Success at School and Vocations	86
5.8	Correlations (Product-Moment) of <i>n</i> Achievement with Pupil Schema Variables	89
5.9	Mean <i>n</i> Achievement Scores of Ss with High, Moderate and Low Perception of Fathers' Expectations	90
5.10	Correlations of Perceived Expected School Success and Actual Success	91
5.11	Intercorrelation Matrix: Perceived Qualities	92
5.12	Correlations of Pupil Schema with Perceived Achievement Qualities	93
5.13	Correlations Between Achievement Qualities Perceived and <i>n</i> Achievement	94
5.14	Correlations of Rate of Perceived Qualities with School Performance	95
6.1	Specimen Item from the Achievement Motivation Inventory	97
6.2	Mean, Median and SD of AMI (Total), AMI-AR, AMI-TR and AMI-UR Scores of a Random Sub-Sample	98
6.3	School-wise Mean and SD of AMI Scores by SAS and School SES	99
6.4	AMI Mean Scores by SAS for School SES	100
6.5	Contingency Table of SAS and UR-AMI	100
6.6	Contingency Table of School SES and TR-AMI	100
6.7	Contingency Table of School SES and UR-AMI	101

TABLE	PAGE
6.8 Contingency Table of Fathers' Occupations and AMI-Scorings	102
6.9 Contingency Table of Father's Occupations and UR-AMI	103
6.10 Correlation Between <i>n</i> Achievement Categories and AMI Catgoeries	104
6.11 Correlation Between <i>n</i> Achievement Sub-categories and AMI Categories	104
6.12 Correlation Between Pupil Schema and AMI Variables ..	106
6.13 Correlation of AMI and Its Sub-categories with School Performance in Various Subjects	106
6.14 School-wise Correlations between AMI, School Performance and Intelligence	108
6.15 Mean Performance at School Examination for Ss Classified on <i>n</i> Achievement and TR+UR (AMI) ..	110
6.16 Effect of Individual Differences in Two Motives (<i>n</i> Ach and Anxiety), Tested Separately on Expectancy of School Success	110
6.17 Effect of Individual Differences in Two Motives (<i>n</i> Ach and Anxiety) Tested Separately and Expectancy of Success on School Performance	111

LIST OF FIGURES

Fig 3.1 Distribution of Pupils by Age	35
„ 3.2 Distribution of Intelligence Scores	35
„ 3.3 Distribution of <i>n</i> Ach Scores	36
„ 3.4 Distribution of <i>n</i> Ach Scores for Rural and Urban Groups	42
„ 3.5 Mean <i>n</i> Ach Scores by School SES	48
„ 3.6 Distribution of <i>n</i> Ach Scores by Fathers' Educational Level	51
„ 3.7 Mean <i>n</i> Ach Scores by Fathers' Occupational Groups ..	54
„ 4.1 Academic Performance by <i>n</i> Ach for Fathers' Educational Level	76
„ 5.1 Pupils' Perception of Expected School Success	86
„ 5.2 Pupils' Perception of Expected Vocational Success ..	86
„ 5.3 Pupils' Perception of Expected Success in Co-curricular Activities	87
„ 5.4 Perception of School Ssuccess	91
„ 5.5 Perception of Vocational Success	91
„ 5.6 Perception of Success in Co-curricular Activities ..	91

LIST OF TABLES

STUDY TWO

TABLE	PAGE
1 <i>n</i> Ach Scores of Teachers Before and After the Motivation Training Programme at Jaipur	167
2 Items of the Course, with Time Devoted to Each ..	171
3 Mean Change in <i>n</i> Achievement	179
4 Mean Change in <i>n</i> Achievement of Middle and Low SES Boys in Experimental and Control Schools	180
5 Correlations Between Scores on Achievement Pre-test and Marks at the Annual Examination	181
6 Percentage of Test Items Covered in the Syllabus till the Date of Testing	181
7 Mean Change in School Performance in Experimental and Control Schools	183
8 Mean Change in School Performance by Low SES ..	185
9 Mean Change in School Performance by Middle SES ..	186
10 Mean Change in <i>n</i> Achievement of Bright Underachievers by Schools	188
11 Mean Change in School Performance of Bright Underachievers in Experimental and Control Schools ..	189
12 Mean Change in School Performance of Bright Underachievers Experimental and Control Schools by Fathers' Low SES	192
13 Mean Change in School Performance of BUA in Experimental and Control Schools by Fathers' Middle SES ..	193

LIST OF FIGURES

Figs 2.1-2.5	Self-evaluation by Participants ..	164-165
,, 4.1-4.3	Mean Change in School Performance of Bright Underachievers in Experimental and Control Schools by Fathers' Low Socio-Economic Status	190
,, 4.4-4.6	Mean Change in School Performance of Bright Underachievers in Experimental and Control Schools by Father's Middle Socio-Economic Status	191

Introduction

WHAT kind of ideas occupy the mind of a young high school boy? What are his concerns? He may be concerned with making and retaining friendship with other boys and girls, or with a desire to become monitor of his class or captain of the football team, or with seeking the reward and approval of his teachers or parents. He may also be concerned with the desire to improve his performance at school, or to get a good grade, or to become engineer and so on. Concerns such as these indicate motives. For example, the concerns mentioned above indicate, respectively, Affiliation, Sex, Power, Approval and Achievement motives. The present investigation was designed to measure the level of the achievement motive (written also as *n* Achievement or *n* Ach) in high school boys.

Crandall (1963), after an extensive review of research, has observed that research in child psychology concerning achievement as a dispositional or behavioural system, as compared to research in many other areas, is still in its infancy. Although research pertaining to achievement and abilities has been done for quite some time, enquiries into the motivational component of children's achievement behaviour and the antecedents of these are just beginning.

Work on the achievement motive is of recent origin. Psychologists had been interested in experimental analysis of animal learning ever since Darwin's Theory of Evolution, but not till the nineteen-forties was the problem of measuring human motivation and experimental and conceptual analysis of the problem of motivation taken up. The work initiated by McClelland and co-workers (1948) on achievement motivation and the work of S-R theorists led to a combination of the study of individual differences with the study of the processes of motivation. The first major report of the experimental work on measurement of human motivation, particularly the achievement motive, appeared in 1953 (McClelland *et al.*, 1953). Atkinson (1958) later edited further research which employed thematic apperception as the technique for the measurement of human motivation. McClelland (1961) further reported some interesting research on the achievement motive and economic development.

McClelland and his associates (1953) adapted Murry's TAT technique (1938) for the measurement of human motivation. In this technique,

certain pictures are used to obtain stories from the subjects for analysis of their motivation. Stories obtained for the purpose of the measurement of achievement motivation are scored in a particular way, following a scoring system developed by McClelland and his associates (1953). This has been presented in a manual form by Feld and Smith (1958). Some illustrative stories obtained in the present study are shown in Appendix VII.

Achievement Imagery

The stories written in response to the TAT type pictures are first scored for Achievement Imagery (McClelland *et al.*, 1963, pp. 110-115) on any one of the following three criteria:

1) *Success in competition with some standard of excellence.* "It is present in a story when the goal of some individual in the story is to be successful in terms of competition with some standard of excellence."

2) *Unique accomplishment.* "One of the characters is involved in accomplishing other than a run-of-the-mill daily task which will mark him out as a personal success. Inventions, artistic creation and other extraordinary accomplishments fulfil this criterion".

3) *Long-term involvement.* "One of the characters is involved in attaining a long-term achievement goal—being a success in life, becoming a machinist, doctor, lawyer, successful businessman, and so forth". Such stories, *i.e.*, those which possess, AI are scored further for sub-categories.

Doubtful achievement imagery and unrelated imagery

Stories which contain some reference to achievement but fail to meet one of the three criteria for achievement imagery are scored as doubtful achievement imagery (TI). Stories in which there is no reference to achievement goal are scored as unrelated imagery (UI). The TI and UI stories are not scored further for sub-categories.

The study motive

The achievement motive is being studied both in relation to economic growth (research reported in McClelland, 1961) and academic performance (several studies in McClelland, *et al.*, 1953 and in Atkinson, 1958). Several psychologists in the USSR have been engaged in research on 'Study Motives'. Studies such as Bazhovich's work on attitudes towards studies (1962), the psychological analysis of grades as motive of the study activity of a school child (1962) and Badalev's work (1955) on the formation of exactingness towards oneself in school children are some examples of growing research in this area in the U.S.S.R. These studies highlight

the importance of the formation of 'exactingness' (or standards of excellence) in the development of proper study motivation in children.

Kagan and Howard (1962) have summarized researches showing the importance of mastery behaviour in the general development of a child and his personality. Flanagan (1964) in a recent review of researches and their implications for the improvement of secondary education has pointed out that the basic motivating factors leading man to work long hours under unsatisfactory conditions are related not to good pay, job security, good supervisor or good working conditions. The effective motivators are closely related to the content of the job. They are based on the feeling of accomplishment and growth with respect to value objectives. The same factors are likely to be most effective motivators of studies.

Wastage in Indian education

Wastage in Indian education, particularly at the primary and the secondary school levels, is well known. One out of every two candidates at the secondary school examinations in the country, fails to qualify every year. Naik (1964) has drawn attention to the magnitude of the problem of wastage in Class I and has called for a national programme for improvement of this situation. It is also well known that, besides a large number of failures, there is considerable underachievement in those who succeed at examinations. Wan (1962) has drawn attention to the problem of failures, and wastage. He reported that during the last decade, attention has been focussed not only on individual failures but on the failures of educational practices and systems to inspire pupils to excel. Only one out of eight adolescent children in the age group 14-17 years reaches secondary school. The high school population is therefore highly selected. Fifty per cent failure in this population is really pathetic. Very few investigations are known to have been conducted on the causes and possible remedies of this situation. For example, only seven dissertations at the M.Ed. level have been reported, on certain aspects of motivation, between 1939 and 1961 as against seven Ph.D. theses, six M.Ed. theses and 96 M.Ed. dissertations on mental testing (1963). The causes of failure and low achievement may be many and varied. The whole system of examination is being questioned. The curriculum, textbooks and teaching methods also contribute their share to this problem. One of the major factors may be low motivation to achieve (Garrett, 1949; Burgess, 1956; Sinha, 1966).

Level of the achievement motive in high school boys

How strong are the thoughts of success and failure in Indian adolescent boys? How strong is their concern to compete with standards of

excellence? Answers to these questions require systematic studies. The first objective of the research being reported in the following pages, as mentioned earlier, was to make a survey of the achievement motive in our high school boys. It was decided to examine the level in each of the components of *n* Achievement, namely, Need (N); Instrumental Activities (I); Goal Anticipation (Ga+ and Ga-); (Blocks Bw and Bp); Help (H); Emotions (G+ and G-); and Achievement Thema (Ach Th). These have been discussed in detail by McClelland *et al.*, (1953).

Achievement and school performance

McClelland has provided evidence (1961) in support of his hypothesis that *n* Achievement is related to economic growth. He has argued and proposed that societies high in *n* Achievement show greater economic growth than those low in *n* Achievement. Empirical evidence on the relationship of *n* Achievement and school (academic) performance has been inadequate and erratic. Atkinson *et al.*, (1962) found the social approval motive to be related to performance in exactly the same way as *n* Achievement. Riccui *et al.*, (1955) found moderate positive correlation (*r*'s from .23 to .33) between *n* Achievement and school grades. Uhlinger and Stephens (1960) found the two related in the case of students of superior ability. McClelland (1953) reported inconclusive evidence on the relationship between *n* Achievement and school performance and argued for more systematic studies.

In view of the significant wastage in Indian education and the fact that several studies showed low motivation as an important factor in this regard, it has been decided to examine the relationship of *n* Achievement and school performance in some detail. The relevant results are reported in Chapters 4 and 6.

Social class and n Achievement

Several investigations (*e.g.*, Feld, 1960; McClelland, 1955; Rosen, 1956; Veroff *et al.*, 1960) have found higher level of *n* Achievement in (American) middle class teenage boys than in working class boys. What is true of American high school boys may or may not be true of Indian high school boys. Information was collected, therefore, on the educational level and occupational group and income of the fathers of the boys included in the survey. The relevant results regarding *n* Achievement level and social class variables are reported, compared with the results of such studies as mentioned above and discussed in Chapter 3.

Demands on pupils for success striving

McClelland has argued (1953, pp. 63-64) that the achievement motive in an individual or society develops out of growing expectations. The

demand put on the individual by his social environment contributes to the development of his desire for success. Drews and Teapan (1963) found parents of high academic achievers to be less permissive in their treatment of their children than the parents of low academic achievers. Ryan (1958), Tannenbaum (1962), Fraser (1959) and Coleman (1960) have reported on the interrelationships of adolescents' culture, social acceptance and academic achievement. Sears (1963) found a strong interpersonal influence of the opinions of peers and teachers on the learning of the less able pupils.

These researches, therefore, suggest some kind of relationship between the level of achievement motivation and achievement demands on the individual in a given family or society. The three sources of such demands on the pupils are: father, teachers and peers. It was further assumed that such achievement demands are meaningful to the individual to the extent, and in the way, he perceives them. It was decided, therefore, to assess the pupil's schema of the expectations of father, teachers and peers for his success in school, in work and in later life. It was decided to test the following assumptions in this regard:

1. Boys with high *n* Achievement perceive their peers as having high expectations about their (*i.e.*, the boys') school performance.
2. Boys with high *n* Achievement perceive their teachers as having high expectations about their school performance.
3. Boys with high *n* Achievement perceive their fathers as having high expectations about their school performance.
4. Boys with high *n* Achievement perceive their fathers as having high vocational aspirations for them.
5. Boys with high *n* Achievement perceive their peers as having high vocational aspirations for them.
6. Boys with high *n* Achievement perceive their teachers as having high vocational aspirations for them.
7. Boys with high *n* Achievement perceive their best teachers as having achievement qualities.
8. Boys with high *n* Achievement perceive their best friends as having achievement qualities.
9. Boys with high *n* Achievement perceive their fathers as having achievement qualities.

Instruments

The major instrument used was a set of TAT type pictures, a verbal measure of *n* Achievement. The investigators of the achievement

motivation view the behaviour evidenced in stories told to pictures as a joint function of the subject's stable motivational predispositions and his current life-situation as well as the situations portrayed in the pictures used as stimuli (Atkinson, 1958; McClelland *et al.*, 1953; Veroff, 1961). In view of these findings, it was decided to develop specific pictorial cues for the purpose of the present investigation. An interview schedule for seeking information on pupil schema was also developed. Although the main survey of *n* Achievement was based on a thematic apperceptive measure, the development of a self-rating kind of objective measure, known as Achievement Motivation Inventory (AMI), was taken up as a side study. It was believed that such an instrument, if found suitable, would be useful to researchers and teachers alike. Chapter 2 reports research on the development of the instruments.

The group of schools

The survey was conducted in 32 higher secondary schools of Delhi. These schools were selected from 165 secondary schools which were scrutinized for their achieving and socio-economic status. These schools were first arranged by their total pass percentage at the Higher Secondary School Examination of 1963. The average pass percentage was 63.90. The schools were then divided in two groups: those getting a pass percentage higher than 63.90, and those getting lower than this average percentage. The schools in both the groups were next arranged in terms of the total number of their first-divisioners (for the year 1963). The first 28 schools in each of the two groups were selected to form the high achieving and the low achieving schools.

These 58 schools came from all zones of Delhi. The respective zonal inspector of schools rated each school in a designed socio-economic status scale. The inspector rated a school as High SES if, in his judgment, it mostly catered for the boys from the upper class or the richer sections of the community, and Low SES if a school mostly catered for the boys from the lower or poorer sections of the community. The rest of the schools were rated as Middle SES. Thirty-two schools were finally selected on the basis of their achieving status (AS), socio-economic status (SES) and geographical location. The schools are shown in Appendix 1.

The survey was confined to Class IX boys. One section each of Class IX was included from the 32 schools, involving 975 pupils of whom 375 belonged to the science group and the rest came from non-science subject groups (humanities and commerce). Chapter 3 reports data on the socio-economic class and the level of achievement motivation in Class IX boys.

The study on pupil schema was conducted on a small sub-sample of 200 Ss (subjects). These Ss were individually interviewed. Chapter 4 reports the relevant data and their relationship between school performance and *n* Achievement score. Chapter 6 contains normative data on AMI and on the relationship of AMI with *n* Achievement school performance and pupil schema. Chapter 7 summarizes the main findings and raises some questions for further investigation.

The survey was conducted in February-March 1965. The group tests were administered to the selected Ss in the forenoons in the following order: thematic apperceptive measure of *n* Achievement; a verbal group test of intelligence (Mehta, 1962); AMI and a socio-economic status scale (Kuppuswamy, 1962). The interviews were given on the day following the group tests. All interviews were carried out by one person.

Development of Instruments

THE first important task, which faced the proposed studies, was the development of suitable instruments for measuring the need for Achievement and some variables of the pupils' schema, namely, their perception of the performance expected of them by their peers, teachers and parents. It was decided to develop the following instruments:

1. A TAT type instrument for measuring the need for achievement (*n* Ach, after McClelland, 1953).
2. An objective measure of achievement motivation.
3. An interview schedule in two parts: (a) open-ended questions, and (b) items for which responses were to be sought on a ladder after Cantril's (1962) self-anchoring device.

I

THEMATIC APPERCEPTIVE MEASURE OF *n* ACHIEVEMENT

McClelland *et al.*, (1935), Atkinson (1958b) and Veroff (1961) have pointed out the effect of cultural and situational factors on thematic apperception. These researchers have raised the issue that people from different social backgrounds may react differently to the same stimulus. This issue has a long history of discussion, described especially in Henry's (1947) cross-cultural work and Lindzey's (1961) recent summary of cross-cultural studies using projective techniques. In view of these research findings, it was decided to develop a set of fresh pictures to work as the thematic apperceptive measure of the achievement motive under Indian conditions, particularly for high school boys.

Criteria for the development of pictorial cues

The following criteria governed our thinking in selecting and/or developing cues for the instrument:

1. The cues should suggest some such situation which may be considered suitable on *a priori* grounds for evoking achievement imagery (as defined by David C. McClelland and his associates).
2. They should depict situations related to the achievement experiences of high school pupils.

3. They should contain situations familiar to pupils, irrespective of their socio-economic background.
4. They should have some person(s) resembling the sex and age group to be studied, *i.e.*, high school boys.

TRY OUT OF IDEAS AND CUES: TRY-OUT 1

Exploratory study

With the above criteria in mind, an exploratory study was made of situational conditions in the surrounding culture of high school boys with special emphasis on the school and the home. Magazines, newspapers, journals and other similar sources were searched in order to select suitable pictures and to get some ideas for developing new pictures. The pictures used by McClelland and his associates in their research on achievement motivation, were also studied.

Poster-size pictures

As we were developing criteria and situations for the proposed instrument, it was felt necessary to get the feel of existing classroom situations and to obtain some stories in Hindi for scoring practice. Four pictures were tried out initially. These were B3, B4, B5 and B6, described in Appendix 2. They were drawn on thick poster paper, 53 cm×46 cm., by one of the staff members. It was decided to get such large-sized pictures so as to be able to display them like posters to a group of about 20 pupils. These pictures were tried out on Class VIII pupils of the Senior Basic School of the Central Institute of Education, Delhi.

Administration of the test

Two members of the staff visited the school for this purpose. They were introduced to the Class VIII pupils by the school's headmaster, as research students interested in studying the type of imaginative stories pupils could write. The headmaster urged them to follow the instructions carefully and to feel free to write whatever stories they could imagine. After this introduction, the headmaster left the room. The experimenters then distributed the answer-sheets which contained four papers, one each for four stories. On each paper were printed the following four questions in Hindi:

1. What is happening?
2. What has led up to this situation?
That is, what has happened in the past?

3. What is being thought?
What is wanted? By whom?
4. What will happen?
What will be done?

One of the experimenters then read out the following instructions in Hindi:

This is a test of your creative imagination or story telling. A number of pictures will be shown to you. You will have twenty seconds to look at the picture and then about four minutes to write a story about it. Please note that there is one page before you for writing the story for each picture to be shown. The same four questions appear on each page to guide your thinking and to enable you to cover all the elements of a plot within the time allotted. You do not have to answer the questions directly. They are there to help you think up a story. Plan to spend about a minute on each question. I will keep time and let you know when it is about time to go on to the next question for each story. You may go on before I tell you if you wish.

Obviously there are no right or wrong answers, so you may feel free to make up any kind of story you choose. Try to make the stories interesting, for this is a test of your creative imagination. Do not merely describe the picture you see. Tell a story about it. Write as fast as you can, in order to finish in time. Do not worry about grammar and spelling. Make the stories interesting. If you need more space for any question, use the reverse side.

Display of pictures

One of the experimenters stood in a front corner of the classroom, facing the pupils with a poster in his hands, so as to be clearly visible to the entire group. Each poster was held up and shown to the Ss for 20 seconds. After each poster was thus shown for the specified time, the Ss wrote their stories on the answer-sheets given to them. Thus, 21 Ss wrote 84 stories, one each on each of the four pictures.

TRY-OUT 2

After the experience gained in Try-Out 1, six other pictures were developed and tried out. These were: G-1, G-2, G-3, G-4, C-1 and C-2 (see Appendix 2).

This try-out was carried out in the same way and on the same sample as Try-Out 1. The purpose of the second try-out was also to get more ideas about further development of cues for the final try-out.

TRY-OUT 3

Equipped with the experience obtained in the first two try-outs, Try-Out 3 was planned more comprehensively. The following steps were taken:

Cues

Twenty-four pictures in four sets of six pictures each were developed and used in Try-Out 3 (see Appendix 2). The pictures were semi-structured and were drawn in semi-vague lines. It was hoped that such pictures would evoke Achievement Imagery.

Schools

These cues were tried out on Class IX boys in two schools, one from rural Delhi (M. L. Higher Secondary School, Narela) and other from the heart of the city (Ramjas Higher Secondary School, No. 4).

Arrangements of cues

The cues were administered so as to get approximately an equal number of boys from each school, as well as for each set. The distribution of Ss who took each set of cues is shown in Table 2.1. Thus, 121 boys wrote 726 stories—six stories from each boy; one story each in response to the six cues.

TABLE 2.1

DISTRIBUTION OF Ss ACCORDING TO PICTURE SETS

<i>Picture set*</i>	<i>No. of subjects</i>
A	28
B	40
C	25
D	28
Total	121

*Each set contains 6 cues.

Administration of the test

The school conditions dissuaded us from projecting slides on a screen. As, in fact, many of our schools do not have the necessary facilities, it was decided to develop cards, one for each picture, and use them like a group test. The same instructions, as were given in Try-Out 1 and 2, were given with minor modifications to suit the purposes of the group test. Each subject was given six pictures, one after another, of the given set. The Ss saw one picture for 20 seconds and then were instructed to put it upside down and write a story in the next four minutes. After the first story, the second picture was distributed, and the Ss saw it in

the same way for 20 seconds and wrote a story. Thus, six stories were obtained from each pupil, one story for each of the six pictures in a given set.

SCORING OF THE STORIES

Scoring practice

The project staff devoted considerable time to practising, and attaining proficiency in, scoring. This was done with the help of the Manual developed by Smith and Feld (1958) for what has been named as the scoring system 'C'. The scorers eventually established an acceptable inter-scorer reliability of .80 or more with the expert scoring given on the practice-material (Smith and Feld, 1958). After scoring the practice material, the stories obtained in Try-Out 1 and 2 were scored. These were discussed in staff meetings and some ground rules were formulated for further scoring.

The staff thus obtained adequate practice in scoring with the help of stories obtained in Try-Outs 1 and 2. They began to understand the subtleties of the scoring system. Before scoring the stories obtained in Try-Out 3, sufficient time was devoted to practising and learning the scoring system further. The scorers once again established their reliability of scoring at about .80 with the help of the practise-scoring material. They also scored practice-material selected from stories obtained in Try-Outs 1 and 2. Each scorer first scored every story for AI (Achievement Imagery). The scorers then discussed in staff seminars their scores and the reasons for giving a particular score. In this way they helped each other in getting more practice and in understanding an acceptable objective method of scoring Hindi stories.

ANALYSIS OF THE DATA

Answers sought

The pictorial cues were examined for the following characteristics:

- a. *Discriminating power.* How much power did a given cue possess to indicate individual differences in the achievement motive? To find this out, all stories written to given cues were first scored for AI. The AI stories were further scored for ten sub-categories. Thus, each individual got some score on stories written to each of the six cues in a given set. The distribution of scores obtained on any one given cue in the concerned set was used to yield 'High' and 'Low' groups. The Ss who were placed in the upper 25 per cent of the distribution of the scores on a given cue formed the

High n Achievement group and those getting scores in the bottom 25 per cent formed the Low n Achievement group on that cue. The mean n Achievement scores obtained by these two groups (High and Low groups on the given cue) on the other five cues in the set (excluding the score on the cue under analysis from the total score on the set) were found out. The mean scores on five cues worked as a measure of validation for the remaining, *i.e.*, the sixth cue in the set. The difference in the mean n Achievement scores (on five cues) of High and Low groups on the given cue (sixth) was a measure of its discrimination power.

- b. *Evokability of Achievement Imagery (AI)*. Each picture was examined for its evokability of achievement imagery (AI), *i.e.*, whether a given picture contained adequate achievement-related cues and whether it evoked stories which could be scored as AI? Some kind of achievement-related cues were put in each picture in the hope that it would stimulate Achievement Imagery in pupils, as evidenced in their stories. The stories written to individual cues were scored for Achievement Imagery. The percentage of the total stories coded as AI, with respect to each pictorial cue, formed the measure of evokability of AI of that cue (AI Percentage).
- c. *Correlation of total scores on each cue with total school marks*. One of the objectives of the survey was to find out the relationship of the achievement motive in high school boys with their school performance. The school marks obtained by the Ss at their previous annual examination were collected and converted into standard scores which were used for finding out the correlations reported in the last column of Table 2.2.
- d. *Inter-scorer agreement on AI*. The agreement between two scorers in coding stories written to a cue as AI.
- e. *Rank difference, inter-scorer correlation* between total scores (AI and sub-categories assigned by two scorers to the stories written to a cue).

RESULTS : DISCUSSIONS

Criteria for acceptance of cues for final instrument

It was difficult to fix criteria for acceptance of cues on several characteristics simultaneously, as mentioned above. Twenty-four pictorial cues were tried out, of which the investigator wanted to select twelve so as to arrange them in two sets of six cues each. The cues were examined on the above characteristics in the following order:

1. Since a measure of individual differences in *n* Achievement was being developed, the discrimination power of a given cue was considered as the most important criterion.

2. The percentage of AI of stories written to each cue was considered somewhat equivalent to the difficulty value of an item. It was considered desirable for a cue to show AI percentage of about 50.

3. The acceptable cues were expected also to show positive correlation with school marks. The ones which showed higher correlation with school marks (than others in the group) were given preference provided they were not apparently unsuitable on the first criterion (*i.e.*, not showing any difference or showing negative difference in mean scores of its High and Low *n* Ach groups).

4. The inter-scorer agreement on coding of AI and the inter-scorer correlation between total scores assigned by two scorers were also kept in view, particularly for those cues which met at least two of the major criteria listed above.

First, the cues were arranged in order of their discrimination values (from positive to negative). A5, as seen in Table 2.2, showed the highest mean difference and B3 got the lowest place by showing a negative difference of 3.5. The cues A2, A6, and A1, although placed high in order of discrimination value, were not considered suitable for the final instrument. A2 ('A boy day-dreaming'; see Appendix 2), was considered over-unstructured; it also showed very low correlation with school marks. A6 ('A group of students taking examination') showed high negative correlation with school performance (Table 2.2). A1 ('A boy flying kite') was considered playful; it also evoked low Achievement Imagery (Low AI percentage).

The following 15 cues were arranged in order of their discrimination values: A5, A3, A4, A2, A6, C2, A1, C5, D4, B1, D5, D2, B2, C3 and B4. Cues A2, A6 and A1 were excluded for the reasons mentioned above. The rest of the twelve cues were considered acceptable.

AI percentage

Table 2.2 shows that A3, A5, B1, B2, C2, C3, C5 and D2 showed AI percentage near 50, ranging between 40 and 56. D5 showed high AI percentage and the rest, *i.e.*, A4, B4 and D4, evoked low percentage of AI stories. Of these, A4 and D4 showed good discrimination power and B4 showed high positive correlation with school performance. Some other cues, such as D3 and D6, showed High AI percentage but they failed on the first criterion and were, therefore, not accepted.

Inter-scorer correlations

Nine out of the 12 accepted cues, mentioned above, showed an inter-scorer AI agreement of .80 or more. These cues evoked stories which could be scored as AI with sufficient objectivity. These cues also showed high inter-scorer correlations on their total scores. Some cues, for example, A₅, B₁, C₃ and D₂, showed inter-scorer correlations of .70 or above. The above results further confirmed that stories written in response to most of the acceptable cues could be scored with good objectivity.

Correlations with school marks

Out of the acceptable cues, some showed high positive, some negative and some just no relationship with school marks. A₃, A₄, A₅, B₁, B₂, B₄ and C₂ showed positive correlations, some of which were significant.

Cues used in the survey

Table 2.3 summarizes the results on the six cues (B₄, D₄, A₅, A₃, B₂, and C₂) which were finally selected for use in the survey. The last four of these cues showed AI percentage of about 45, good discrimination, positive correlations with school marks and high inter-scorer agreement on AI and inter-scorer correlations. The first cue (B₄) showed Low AI percentage and Low positive discrimination but high correlation with school marks (the highest of the obtained correlations). This cue is very different in content also from other cues. The second cue (D₄) showed satisfactory discrimination power, high inter-scorer agreement on AI and satisfactory inter-scorer correlation on total scores. (An inter-scorer correlation of .70 or more is usually considered as acceptable reliability in such scoring). These cues were administered in the order in which they are listed. The results on *n* Achievement reported in later chapters related to these cues, which are exhibited in Appendix 3. The other six cues which were also considered suitable were retained for use in future research.

Reliability of the Thematic Apperceptive Measure

McClelland *et al.*, (1953) and Atkinson (1958) have shown the effect of a momentary state on achievement motivation in the individual. The momentary strength of achievement motivation is assumed to be the resultant of the achievement motive in the individual (as a relatively stable personality disposition to strive for achievement) and the strength of the expectancy of satisfying the motive that is aroused by the cues of

TABLE 2.2

RESULTS ON CRITERIA OF ACCEPTANCE OF CUES FOR THE THEMATIC APPERCEPTIVE
MEASURE OF n ACHIEVEMENT

Cue Code No.	N	Mean n Achievement groups on each cue			AI percen- tage	Inter-scorer agreement on AI	Inter-scorer correlation on total n Ach scores	Correlations of total n Ach scores with school marks
		High	Low	d				
A-1	28	16.1*	11.9*	4.2	28.6	.60	.55	.47
A-2	28	19.3	12.9	6.4	32.1	.87	.72	.06
A-3	28	15.7	07.8	7.9	48.4	.92	.83	.63
A-4	28	18.8	11.5	7.3	21.4	.80	.61	.55
A-5	28	16.1	08.7	8.3	42.8	.92	.86	.31
A-6	28	13.3	08.5	4.8	35.7	.53	.47	-.40
B-1	40	16.8	13.9	2.9	40.0	.85	.82	.34
B-2	40	15.7	13.4	2.3	52.5	.82	.68	.41
B-3	40	14.8	18.3	-3.5	27.5	.66	.71	.56
B-4	40	18.2	16.5	1.7	17.5	.62	.64	.74
B-5	40	15.8	14.9	0.9	42.5	.86	.77	.21
B-6	40	15.7	13.9	1.8	40.0	.91	.36	-.37
C-1	25	16.5	13.7	1.8	16.0	.55	.73	.18
C-2	25	16.4	12.1	4.3	48.0	.92	.75	.27
C-3	25	15.1	12.8	2.3	56.0	.66	.85	.01
C-4	25	14.0	14.2	-0.2	24.0	.63	.77	-.03
C-5	25	15.4	11.9	3.5	48.0	.87	.67	.06
C-6	25	13.1	14.4	-1.3	20.0	.89	.83	-.42
D-1	28	18.2	17.6	0.6	32.1	.67	.77	Data
D-2	28	17.7	15.0	2.7	42.8	.80	.83	Inadequate
D-3	28	17.4	16.8	0.6	62.3	.97	.81	-do-
D-4	28	19.3	16.2	3.4	21.4	.86	.76	-do-
D-5	28	16.5	13.7	2.8	82.1	.68	.38	-do-
D-6	28	15.1	16.5	-1.4	50.0	.75	.72	-do-

* Computed on the total scores obtained on five cues in a set, excluding the cue under study. The High and Low groups correspond to the upper and bottom 25 per cent of the distribution of scores on respective cues. Mean scores include a constant of 10, added to avoid negative scores.

the test situation and the pictorial cues. Following this theoretical conception, the observed changes in the *n* Ach scores obtained on various occasions could be indicative of changes in the situation and in the expectancy of achievement aroused by various cues. These considerations lead to the supposition that the test-retest reliability of this measure would be only moderately high. Lowell (1958) administered two equivalent three-picture forms to 40 college men after one week's interval under comparable test conditions and obtained $r = .22$ (not significant). Morgan (1955) using two twelve-picture forms after five weeks' interval under neutral conditions obtained correlations ranging from .56 to .64 for three groups of high school students. French (1955) using the same technique with 30 air force men found a correlation of .45. Habber and Albert (1958) gave two picture forms to college students over a three weeks' interval, and obtained correlations ranging from .36 to .59. Feld (1960) obtained the test re-test suitability of .38 over an interval of six years. Atkinson (1956) reported a split-half reliability of .64 (uncorrected).

TABLE 2.3

INFORMATION ON CRITERIA FOR THE SIX SELECTED CUES USED IN THE SURVEY

Picture Code No.	Description of the picture cue	AI Percentage	Inter-scorer agreement on AI	Inter-scorer correlations on <i>n</i> Ach scores	Correlation with school marks	Total mean scores for	
						High <i>n</i> Ach group	Low <i>n</i> Ach group
B-4	A doctor and a patient	17.5	.62	.74	.64	18.2	16.5
D-4	A boy learning to play on the <i>tabla</i> from his teacher	21.4	.86	.76	NA*	19.3	14.2
A-5	A boy with a book sitting on the cot	42.8	.92	.86	.91	16.0	08.7
A-3	A boy with a notebook, an ink-pot and a pen	46.4	.92	.83	.63	15.7	07.8
B-2	A boy painting	52.5	.82	.68	.41	15.7	13.4
C-2	A group of boys playing cricket	48.0	.92	.75	.27	16.4	12.4

* NA = Marks not available or inadequate number.

Reliability of the present instrument

Two groups of high school pupils were re-tested after an interval of four months. In one case the correlation was .39 ($N = 41$) and in another case it was .56 ($N = 42$). A split-half reliability of .58 corrected to .73 ($N = 22$) was found on a group of research trainees. The results compared well with the results obtained by other researchers in this field.

COMPONENTS OF ACHIEVEMENT MOTIVATION

Analysis of AI stories for components

Out of the total number of 726 stories written by 121 Ss, 281 were scored for achievement imagery (AI). These stories were then further scored for sub-categories or components. It is seen in Table 2.4 that Bw (blocks from outside world); Bp (personal blocks); H (help from others); G—(negative effect); I (instrumental activities); and Ga—(goal anticipation of failure) received almost no score. These results have important theoretical as well as practical implications.

Applicability of scoring system

Low scores on sub-categories raised doubts about the scoring system and its applicability under Indian conditions. A brief study was therefore taken up in this regard, as follows. Out of the total sample, such stories as were scored as AI independently by two scorers, were picked-out. Two hundred and seventeen stories out of 281 AI stories were thus obtained. Each of these stories was re-examined by a trained scorer. He recorded all the statements in a given story which, he thought, could not be scored under any of the existing sub-categories of the scoring system 'C'. He got 94 stories containing some statements about which he was in doubt. These statements were then further examined by another trained scorer. Finally these were discussed in a staff seminar. It was ultimately found that all such recorded statements were either similar to other statements which had already been scored under some sub-category, or were trivial. It was thus found that almost all significant statements or sentences in the obtained stories had been scored. The results suggested, therefore, that the scoring system 'C' was able to pick up all significant imagery content from the stories. The results provided evidence in support of the scoring system and its applicability to the stories obtained from our high school pupils.

TABLE 2.4

PERCENTAGE DISTRIBUTION OF CATEGORIES, UI, TI AND AI, FOR ALL SETS OF CUES AND OF SUB-CATEGORIES FOR THE AI STORIES

<i>Set</i>	<i>No. of Stories</i>	<i>UI</i>	<i>TI</i>	<i>AI</i>	<i>Need</i>	<i>I</i>	<i>Ga+**</i>	<i>Ga—</i>	<i>G+</i>	<i>G—</i>	<i>H</i>	<i>Bp</i>	<i>Bw</i>	<i>Ach Th</i>
A	168	26.78 (45) ^a	38.69 (65)	34.52 (58)	28*	64	62	7	2	2	2	0	0	62
B	240	15.00 (36)	48.33 (116)	36.67 (88)	24	73	67	4	16	2	3	0	1	72
C	150	35.33 (53)	29.33 (44)	35.33 (53)	6	64	55	6	11	0	2	2	0	85
D	168	20.24 (34)	30.95 (52)	48.81 (82)	30	80	71	8	26	2	0	0	0	76
Combined Pictorial Cues	726	23.14 (168)	38.15 (277)	38.71 (281)	23	12	65	6	15	2	2	0	0	73

^a Figures in parentheses show total number of stories in each case.

* The percentage of sub-categories have been found out with respect to number of AI stories in each case.

** A slight error in scoring Ga+ was detected later. The percentage of stories with Ga+ was reduced in later analysis, as mentioned in Chapter 3.

II

INTERVIEW INSTRUMENT FOR THE STUDY OF PUPIL SCHEMA

Three important forces, namely, the peers, the teachers and the father, exercise an important influence on school pupils. The former hold certain expectations from the latter. The high school pupil, consciously or unconsciously, remains continuously under the impact of peers, teachers and parents. He continually interacts with these forces in the school, in the home and outside. The investigator was concerned not so much with the forces of school and home *per se* but with the pupils' perception of these forces. It was assumed that achievement demands on a pupil are meaningful to him to the extent and the manner in which he perceives them. Such demands on a pupil may exist, but they have little motivational value for him if they don't exist in his psychological field—his schema. The pupil schema of achievement demands or expectations are therefore important in the present context. It was proposed to study the pupil's schema of his surrounding world with particular reference to the following:

- a. The pupil's perception of his peers' expectation from him for success at examinations, for success in some co-curricular competition, and for vocational success.
- b. The pupil's perception of his teacher's expectations of success from him in the area indicated above.
- c. Similarly, the pupil's perception of his father's expectation.

We were after a kind of mirrored information from our Ss. This process involves the following two things:

- i) The actual demands or expectations of the peers, teachers, fathers and pupils and
- ii) The reality of these expectations for the Ss as indicated by their perception of these expectations. The father may be demanding achievement from the son but if it is not properly perceived by the latter, such demands may not really have the same meaning for the two. The expectations or demands would affect the Ss the way they perceive them.

THE INSTRUMENT

Items

It was decided to collect data on the above pupil schema through unstructured interviews. There are indications that structured interviews with pupils tend to put responses in their mouths. It was therefore decided to develop a suitable set of open-ended items to make up

the interview schedule. Along with the open-ended items, it was further decided to use items for getting responses on a self-anchoring ladder, following Cantril (1962). It was felt that each pupil might have his own anchor to relate his responses. It was hoped that the open-ended and ladder-type items would provide a cross check on responses to these items.

The first draft of the interview schedule contained 40 items of which 16 were the ladder type and 16 were open-ended. Of the remaining eight, three items sought background data. Another three items required the subjects to narrate the qualities of their peers, teachers and fathers. The first item asked Ss about their own expectations as regards their results at the previous annual examination. One item sought the Ss' occupational choice. The items were arranged alternatively. Each open-ended item was followed by a ladder type item. The following instructions were given for the ladder type items:

Imagine that this is a picture of a ladder of success. The top step on this ladder (showing it) indicates the highest possible success for you and the bottom step (showing it) indicates the lowest possible success for you. In between these two steps there can be varying degrees of success. You have to imagine the expectations of your friends and teachers and your father for your success in future activities and give appropriate answers on the ladder.

Training of interviewers

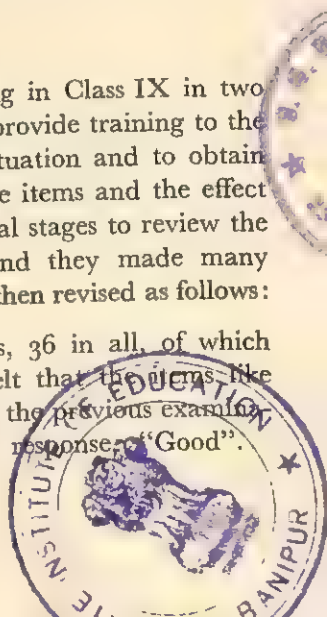
After the first draft of the interview schedule was ready efforts were made to train the interviewers. Several role-play sessions were arranged. Five actual interviews were held by the interviewers and observed by others for discussion. The interviewers later tape-recorded eight interviews which were used to further train the interviewers.

Try-Out 1

The schedule was tried out on 20 boys studying in Class IX in two local schools. This try-out was mainly given to provide training to the interviewers, to acquaint them with the school situation and to obtain some data on the working and arrangement of the items and the effect of the instructions. The project staff met at several stages to review the interviews in the light of the obtained data, and they made many modifications in the schedule. The schedule was then revised as follows:

- a. The revised schedule contained fewer items, 36 in all, of which three sought background data. It was felt that the questions like "What kind of result did your father expect at the previous examinations?" mostly brought forth a stereotype response, "Good".

31.12.2007



This tended to become the pattern of responses. Such items were therefore modified.

- b. The items were re-arranged. Instead of the arrangement of alternating open-ended and ladder-type items, it was decided to put all the open-ended items in a series, followed by another series of ladder-type items.
- c. Each item was provided with an anticipated problem item.

Try-Out 2

The revised schedule was tried out on 30 Class IX pupils, 15 each in two different higher secondary schools. These subjects came from an earlier group on whom the TAT type instrument for the study of *n* Achievement was tried out.

Coding system

Every major variable was studied through some open-ended item. A schema of coding the responses to open-ended items was developed following the procedure described below:

Arrangement of responses. The responses obtained for each item were recorded on slips of papers. These slips were then grouped in suitable heaps. These heaps of slips containing responses were further studied in order to arrange them from 'high' to 'low' expectation. In this way 11 categories were obtained, ranging from 10 to 0, corresponding to the 11 steps on the ladder. The typical responses were recorded under each category of scores. These categories of responses were discussed in a staff seminar and some shifting and re-arrangement was done.

Inter-scorer reliability. The scorers then coded the obtained responses independently. The inter-scorer agreement in the coding of the obtained responses for each item is shown in Table 2.5.

TABLE 2.5

INTER-SCORER AGREEMENT IN CODING OF OPEN-ENDED INTERVIEW RESPONSES

Item No.	Items														
	1	2	3	4	5	6	7	8	9	10	12	13	14	15	
Rank Differ- ence Correla- tions.	.84	.56	.84	.76	.90	.96	.78	.89	.88	.88	.81	.93	.90	.94	

Table 2.5 shows that 13 out of 14 inter-scorer agreements were higher than .75; eleven of these were higher than .80. Items 5, 6, 13, 14 and 15 showed agreement of .90 or more. The inter-scorer agreement therefore indicated satisfactory coding reliability.

Distribution of scores. Table 2.6 and 2.7 show the distribution of scores assigned to responses to open-ended and ladder type items. The open-ended items 7, 8, 9, 10 and 14, as seen in Table 2.6, showed comparatively 'higher' scores. The first four of the above items related to performance at some co-curricular competition and the last one was on teachers' expectation of vocational success. Table 2.7 shows that the ladder items evoked more 'high' responses than the open-ended items. Except on items 1, 2 and 7, the frequencies on the lower side of the ladder were almost nil. Items 1 and 2 related to school success achieved previously at the annual examination, which was subject to objective verification. The items relating to future performance produced responses closer to the top of the ladder scale. The median response to most of the items, both open-ended and ladder, was between 7 and 8 and in some cases between 8 and 9.

TABLE 2.6
DISPERSION OF THE SCORES ON EACH OPEN-ENDED ITEM

Item No.	Responses														N ^a
	LOW					AVERAGE					HIGH				
	0	1	2	3	Total	4	5	6	7	Total	8	9	10	Total	
1	5	0	0	2	7	1	14	0	1	16	3	1	1	05	28
2	2	0	0	4	6	5	07	1	4	17	1	0	4	05	28
3	0	0	0	1	1	6	12	3	0	21	2	2	2	06	28
4	0	0	0	0	0	4	14	2	2	22	0	3	3	06	28
5	0	0	1	0	1	6	09	5	2	22	0	0	4	04	27
6	0	1	0	1	2	4	07	3	3	17	3	2	3	08	27
7	1	1	0	3	5	4	09	2	2	13	0	5	5	10	28
8	0	0	2	0	2	0	11	0	0	13	1	5	6	12	27
9	1	0	1	1	3	1	11	1	1	14	1	5	5	11	28
10	0	0	1	1	2	2	11	0	0	13	1	5	6	12	27
11	0	0	1	0	1	1	16	1	3	21	0	3	2	05	27
12	0	0	0	0	0	1	16	0	4	21	0	3	2	05	26
13	0	0	0	0	0	1	15	0	1	17	0	6	4	10	27
14	0	2	0	1		0	13	0	2	16	2	2	4	08	27

^a Thirty Ss were interviewed for this try-out. Some Ss did not respond to certain items or some of their responses were not scorable, thus reducing N.

TABLE 2.7

DISPERSION OF THE SCORES ON EACH LADDER ITEM

		Responses														N
Item No.	LOW					AVERAGE					HIGH					
	0	1	2	3	Total	4	5	6	7	Total	8	9	10	Total		
1	3	1	0	0	4	0	8	6	6	20	0	4	2	06	30	
2	0	2	1	2	5	4	2	4	3	13	6	1	5	12	30	
3	0	0	0	0	0	2	7	1	2	12	7	2	9	18	30	
4	0	0	0	0	0	3	5	3	3	14	3	6	7	16	30	
5	0	0	0	0	0	4	6	3	1	14	3	4	9	16	30	
6	0	0	0	2	2	3	4	2	2	11	2	4	11	17	30	
7	1	0	0	2	3	1	4	5	3	13	4	5	5	14	30	
8	0	0	0	1	1	2	1	3	5	11	6	2	10	18	30	
9	0	0	0	1	1	2	4	3	5	14	3	1	11	15	30	
10	0	0	0	1	1	4	1	2	2	09	4	5	10	19	29 ^a	
11	0	0	0	0	0	1	3	0	8	12	5	4	9	18	30	
12	0	0	0	0	0	0	2	3	4	09	8	5	8	21	30	
13	0	0	0	0	0	1	3	3	5	12	3	4	10	17	29 ^a	
14	0	0	0	0	0	4	2	0	3	09	1	5	15	21	30	

a. One pupil did not respond.

Correlations between open-ended and ladder items. The correlation between responses to open-ended and ladder type items, presented in Table 2.8 were highly significant (except in one case). The results suggested, therefore, that the two types of items on the instrument tended to reveal the same or similar behaviour in spite of the tendency to evoke responses on the 'higher' side of the scales. The two sub-instruments (*i.e.*, open-ended and ladder type items) provided some measure of cross validation for each other though the degrees of 'validation', as seen in Table 2.8, was not the same for all items. These results helped the selection of the items for the revised instrument. Table 2.8 shows correlations between the open-ended and ladder type items. All of them except one, were significant.

Discrepancy scores

Each respondent had given responses without a comparable frame of reference as regards responses of other Ss. Would it be correct, then, to group such data together to form categories of expectation? It was felt that the discrepancies in responses between self-expectation and perception of others' expectation about oneself might be better indicators

TABLE 2.8

RANK DIFFERENCE CORRELATIONS BETWEEN THE SCORES OF LADDER AND OPEN-ENDED
ITEMS

Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Corre- lations	.61 ^a	.72 ^a	.73 ^a	.54 ^a	.61 ^a	.50 ^a	.51 ^a	.34 ^b	.66 ^a	.72 ^a	.25 ^b	.34 ^b	.57 ^a	.67 ^a

^a Significant at .01 level

^b Significant at .05 level.

of the Ss' level of expectation. The appropriate discrepancies were therefore tabulated with reference to items 3, 7 and 11. (These items related to self-expectation of success at examination, at some co-curricular competition and in some vocation respectively). Tables 2.9 and 2.10 record these discrepancy sources for the ladder items and the open-ended items, respectively. It was hoped that such discrepancy scores would provide some reference for comparing perception of others' expectation of oneself. Items 3, 7 and 10 worked as the reference points. It can be seen in Table 2.9 that 50 per cent of the responses obtained on the ladder indicated no discrepancy; 200 out of the obtained 265 responses, *i.e.*, about 76 per cent of discrepancy scores ranged between ± 1 and 90 per cent ranged between ± 2 . The results indicated that the respondents perceived other people to have expectations from them similar to their own expectation from themselves. May be the latter responses were influenced by the responses on item 3, 7 and 10. The responses to the open-ended items showed more discrepancies. But the results recorded in Table 2.10 indicate more or less the same pattern as those in Table 2.9. It was, therefore, concluded that the distribution of actual scores as recorded in Tables 2.6 and 2.7 and the discrepancy scores recorded in Tables 2.9 and 2.10 tended to tell more or less the same story.

THE REVISED SCHEDULE

Modification of items

Item 1 and 2, which were found to influence later responses, were dropped. Items 16 and 17, which sought background data, were also dropped as this information was obtainable separately. The rest of the items were retained. Some items needed minor modifications in their wording. This was done so as to further increase their pointedness.

TABLE 2.9

FREQUENCY DISTRIBUTION OF THE DISCREPANCY SCORES ON LADDER ITEMS

ITEMS/ SCCRES	Expectation									TOTAL
	CURRICULAR			CO-CURRICULAR			VOCATIONAL			
	4	5	6	8	9	10	12	13	14	
+6	0	0	0	0	0	1	0	0	0	1
+5	0	0	1	2	1	1	0	0	0	5
+4	0	0	0	1	1	1	1	1	0	5
+3	1	1	1	0	1	2	0	0	1	7
+2	1	2	1	5	4	4	0	2	6	25
+1	5	5	4	5	7	4	8	4	2	44
0	12	11	18	12	10	11	16	16	17	123
-1	7	7	1	4	5	3	2	2	2	33
-2	2	3	1	0	0	2	3	3	1	15
-3	1	0	1	0	1	0	0	0	3	3
-4	0	0	1	0	0	0	0	0	1	2
-5	0	1	1	0	0	0	0	0	0	2

TABLE 2.10

FREQUENCY DISTRIBUTION OF THE DISCREPANCY SCORES ON OPEN-ENDED ITEMS

ITEMS/ SCORES	Items									Total
	4	5	6	8	9	10	12	13	14	
+8	0	0	0	1	1	1	0	0	0	3
+7	0	0	0	0	0	1	0	0	0	1
+6	0	0	0	0	0	0	0	0	0	0
+5	0	2	1	1	2	1	0	1	1	9
+4	1	0	1	1	1	2	0	3	1	10
+3	1	0	4	0	0	1	1	2	2	11
+2	2	0	1	3	2	1	2	1	2	14
+1	6	6	5	2	2	2	1	1	2	27
0	14	10	6	14	13	11	19	14	14	115
-1	3	5	3	2	2	3	2	2	0	22
-2	0	2	3	1	1	1	0	1	2	11
-3	0	1	3	0	0	0	1	1	0	6
-4	1	1	0	1	2	1	0	0	2	8
-5	0	0	0	0	1	1	0	0	0	2
-6	0	0	0	0	0	0	0	0	0	0
-7	0	0	0	1	1	1	0	0	0	3
Total	28	27	27	27	28	27	26	26	26	242

Rearrangement of items

The results obtained indicated the influence of the earlier responses on the following responses. This was partly due to the arrangement of items. For example, items pertaining to success at examination were for peers, teachers and parents, one after another. The respondents tended to give similar replies to all the three. It was difficult completely to eliminate the effect of one response on another. It was, however, felt that a random arrangement would help to reduce this. It was therefore decided to mix the items. The new arrangement of items is seen in Table 2.11. This was done without any definite order. The items pertaining to self-expectations were shifted towards the end. It seemed that there was no gain in keeping the items in two separate series, one for the open-ended and another for the ladder; this unnecessarily increased the interview time and the interviewers also felt that this arrangement was less interesting. It was, therefore, decided to revert to the alternate arrangement of open-ended and ladder items. The revised schedule contained 14 items: one each for nine pupil schema variables, mentioned in Chapter 1; three for self-expectation, one on pupil's vocational choice; and one seeking background data (family, religion).

TABLE 2.11

ITEM ARRANGEMENT IN THE REVISED INTERVIEW SCHEDULE

<i>Perception of Expectation</i>	<i>Success in examination</i>	<i>Success in vocation</i>	<i>Success in co-curricular competition</i>	<i>Occupational choice</i>	<i>Family religion</i>
Peers	8*	3	1	0	0
Teachers	6	9	4	0	0
Fathers	10	5	7	0	0
Self	13	12	11	2	14

* These are item numbers on the revised schedule. Each item has two parts, one open-ended and another on the ladder. See Appendix 4.

THE ACHIEVEMENT MOTIVATION INVENTORY

The Achievement Motivation Inventory (AMI)—a multiple-response type questionnaire—was developed in Hindi with the help of the stories written up by high school boys to TAT type pictures. The following two considerations prompted the decision to use the TAT stories as the source material for development of the AMI:

1. It was hoped that the AMI, based on the pictorial cues and stories written in response to them, would reveal achievement motivation similar to or, at least, closely approximating to the thematic apperceptive measure of n Achievement. The use of the latter requires more training, practice and time. The AMI, as a close approximation to the measure of n Achievement, might be an easy tool to use for teachers and researchers alike.
2. The use of rich material in the form of stories was expeditious.

PROCEDURE

Search for alternatives

The stories written to TAT type pictures were researched. Those which were scored independently by two scorers, either as AI or as TI or UI, were selected. Such stories were checked in order to obtain alternatives for each item on the Inventory. Care was taken to ensure that the selected alternatives were comparable on the social-desirability dimension. The statements included in the inventory were based on the 24 pictures used earlier in developing the thematic apperceptive measure of n Achievement. The 24 AMI items were statements descriptive of the pictures. Each statement was followed by six responses of which two each were achievement-related (AR), task-related (TR), and unrelated to achievement (UR).

Criteria

The TAT type pictures, 32 in all, were developed, following four criteria. The pictorial cues were expected to be suitable for evoking achievement imagery in our high school boys related to their achievement experiences and based on situations familiar to such pupils irrespective of their socio-economic background. It was therefore hoped that the behavioural statements would also meet these criteria. The statements included in the Inventory can be seen in Appendix 5.

Alternative forms

Three forms were developed. All the forms contained the same 24 statements. In Forms A and B, each item was followed by three alternative responses, one each of which were AR, TR and UR. The responses to items in Forms A and B were combined to make six alternatives in Form AB. Forms A and B were expected to be equivalent. It was decided: (i) to study the reliability of the Inventory through the equivalent forms; (ii) to find out the relative efficiency of the different forms; and (iii) to develop, if possible, two parallel forms of the Inventory.

Try-Out

The Inventory was tried out on the same Ss who had earlier taken the TAT type test. They were Class IX boys studying in two local higher secondary schools, one rural and another urban. The use of the same Ss aimed at obtaining data which could be compared to the stories written by them earlier in response to pictures. The Inventory was administered without a time-limit. The Ss were however told that the boys of their age usually take about 15 minutes to complete the Inventory. The following instructions were given to them:

This booklet contains some statements relating to behaviour of boys like you. Each statement depicts a situation involving one or more persons doing something or the other. Each statement is followed by six alternative responses showing the possible reasons or purposes of the behaviour contained in the statement. You should first study each statement carefully and then, put a cross (×) in the square preceding that one response which you think is the best reason or purpose of the work described in the statement. Remember that you have to put a cross only in *one* square.

Scoring

The Ss were told to check only one alternative. The obtained response to an item, therefore, could be either achievement-related (AR), or task-related (TR), or unrelated to achievement (UR). Each subject was assigned four scores. The number of AR, TR and UR responses checked, formed AR, TR and UR scores. Each AR was scored as +1 and UR as -1. The latter was subtracted from the AR scores to obtain the total AMI score. In this scoring, the Ss were punished for each UR, as in the scoring of TAT stories for *n* Ach. For want of better conceptualization, it was decided to describe scores on the AMI as AR score, (*i.e.*, the number of achievement-related responses given), TR score, UR score and the total AMI score. The last score was used for the preliminary item analyses reported in this chapter.

Discrimination and Difficulty Values

The discrimination values were worked out through biserial correlations between the top and bottom 27 per cent of the total AMI scores. The difficulty values were the percentage of AR given to each item. This was really the evokability of each item for achievement-related responses (*i.e.*, AR responses). Form AB showed better discrimination and difficulty values as compared to Forms A and B, as seen in Table 2.12. The median difficulty value of Form AB was 42.83 per cent.

Selection of items for Form AB

The items which showed difficulty and discrimination values between 25 and 75 were considered suitable. Twenty items in Form AB adequately met these criteria. Another two items showed good difficulty values and nearly acceptable discrimination. These were therefore accepted.

TABLE 2.12

DISCRIMINATION AND DIFFICULTY VALUES OF INVENTORY ITEMS

Items	FORM A		FORM B		FORM AB	
	Difficulty values, i.e., AR%	Discrimination	Difficulty values, i.e., AR%	Discrimination	Difficulty values, i.e., AR%	Discrimination
1	50	.33	57	.56	49	.31
2	62	.38	40	.53	60	.61
3	26	.33	41	.30	34	.54
4	32	.19	67	.31	42	.21
5	39	.27	35	.22	35	.27
6	28	.40	29	.36	35	.56
7	52	.33	57	.37	47	.59
8	71	.30	56	.37	68	.49
9	16	.11	22	.49	27	.60
10	33	.21	27	.38	37	.41
11	31	.33	28	.63	28	.49
12	53	.11	66	.32	63	.18
13	83	.40	55	.54	70	.44
14	75	.33	52	.25	63	.43
15	27	.03	22	.32	27	.22
16	66	.47	56	.57	59	.40
17	58	.32	21	.08	39	.17
18	34	.49	59	.49	40	.46
19	59	.42	64	.31	61	.51
20	48	.82	35	.48	38	.64
21	33	.65	47	.33	40	.43
22	31	.48	46	.25	35	.52
23	56	.41	62	.48	56	.49
24	44	.44	74	.13	73	.53

The remaining two items, which showed poor difficulty and discrimination values, were rejected. The distribution of difficulty values for the accepted items in Form AB is seen in Table 2.13. These 22 items with better discrimination power composed the AMI which was used in the survey of the achievement motive in high school boys.

TABLE 2.13

FREQUENCY DISTRIBUTION OF DIFFICULTY VALUES OF ACCEPTED ITEMS : FORM AB

	<i>Difficulty Values</i>									
	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74
<i>f</i>	3	1	5	3	2	0	2	3	1	2

Mdn. = 42.83

Reliability

The K-R 20 reliability was as follows: .67 for Form AB; .55 for Form A; and .59 for Form B. Form AB showed a split-half reliability of .55. The K-R 20 formula tended to show a lower bound value under the conditions of the Inventory where there were several alternatives. The obtained reliability of .67 for Form AB was therefore considered satisfactory.

*Relation with *n* Achievement*

As stated above, the Inventory was tried out on the same Ss who had earlier written stories in response to TAT type pictures. The *n* Ach scores obtained on the above pictures were therefore correlated with the score obtained on the Inventory (Form AB). The correlations between the total AMI scores and the total *n* Ach score on the given set of TAT pictures were found out. These correlations are shown in Table 2.14.

The obtained correlations were rather low. However, the correlations with Sets C and D were high. The negative correlation with Set D was interesting. These results will have to be checked by larger studies in the future. Some of these and similar results are discussed in Chapter 6.

TABLE 2.14

CORRELATIONS BETWEEN THE AMI AND *n* ACHIEVEMENT

<i>TAT Sets</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
Rank Difference				
Correlations	.17	.09	.56	-.41
<i>N</i>	9	8	12	6

Parallel forms of the instrument

The product moment correlation between Forms A and B was .50. Both these forms showed at least 20 items which met the acceptable criteria for selection. These forms will be studied in more detail in future.

Form AB in the survey

Form AB showed satisfactory results. Twenty-two out of 24 items met the accepted criteria of difficulty and discrimination. The form also showed satisfactory reliability. This form was therefore taken up for further use in the survey of the achievement motive in high school boys. The main objective of the use of the AMI was to study its relationship with n Achievement. Some interesting results, particularly on the AR, TR and UR are reported in Chapter 6, and their implications are also discussed there. The AMI instrument is given in Appendix 6.

The Achievement Motive in High School Boys

Schools and pupils

THERE were 213 boys' higher secondary schools under the Delhi State Education Department in 1964-65, when the samples for the present investigation were drawn. Out of these, boys from 165 schools appeared at the Higher Secondary School Examination in the year 1963. About 1,000 Class IX boys were needed for the purpose of the present survey. Calculating at the rate of 35 pupils in one section of Class IX, it was decided to draw 32 schools basically on the following two criteria: (a) school achieving status (AS), (b) school socio-economic status (SES).

Achieving Status. First of all, the above 165 schools were arranged in order of their total pass percentage at the 1963 Higher Secondary School Examination. The mean pass percentage was 63.9. Thirty-five schools clustered around the score-group of 56 to 65, 63 schools were above the average and 67 below it. These schools (those above and below the cluster on the average) were separately listed in the order of their results. The percentage of pupils passed in the First Division were recorded against each school. There were First Divisioners only in 28 schools—all above average. These 28 schools were rearranged in order of their percentage of First Divisioners, and were designated as High Achieving (High AS). From the list of below-average schools, the 28 schools (counting from the bottom) were taken out. These were designated as Low Achieving (Low AS).

School SES. The schools in Delhi State are divided among four geographical zones. The above 56 schools were scattered in all the four zones. Each zonal inspector of schools was personally approached with a list of schools (out of the 56 schools) in his zone and a socio-economic status scale (shown in Appendix 8). He was requested to rate each school on the five-point scale. If, in his judgment, a school catered mostly for the boys from the uppermost—the most well-off—sections of the community, he rated that school as A; if the school catered mostly for the middle-class boys, he rated the school as C; if a school catered for the boys from sections between A and C, he rated it as B; if the school catered for the boys from the lowest sections, he rated it as E; and if the school boys came from sections between C and E, he rated it as D. The groups A and B, mentioned above, were combined to form

High SES schools; the groups C and D formed Middle SES; and the group E formed Low SES schools. Out of the High Achieving schools, 15 were rated as possessing High SES, 11 as Middle SES and none as Low SES. Two of these schools could not be rated. Out of the Low Achieving schools, 14 were rated as possessing Middle SES, and the rest as Low SES. No Low Achieving school was rated as possessing High SES. Keeping in view the total number of boys needed for the survey, it was decided to include 15 High AS schools and 17 Low AS schools in the sample.

Six High SES schools and nine Middle SES schools from the High AS group were selected; one each of the High SES schools was drawn from six different localities of Delhi city. The 17 Low AS schools were made up of nine Middle SES schools. (These schools were matched on their location). The remaining eight schools were drawn from Low SES group. Four of these eight Low SES schools were rural schools (outside the city) one from each school zone of Delhi state. Besides the basic criteria of AS and SES factors such as the number of Class IX boys, their subject group (Science, Commerce, etc.) school location, the apparent nature of the locality (*e.g.*, whether it was predominantly a Government colony) were also kept in view in the final selection of schools. The above 32 schools provided 975 Class IX boys for the present survey.

The urban Ss checked a socio-economic status scale (Kuppuswamy, 1962). This scale seeks information on father's occupation, education, and income and gives a composite SES score. About 5 per cent of the boys were placed in High SES, 53 per cent in Middle SES, and 30 per cent in Low SES; and for about 12 per cent boys, no data were available. The Ss ranged in age between 11 and 20 years, with the mean age as 14.21 and median age as 14 years. The distribution of age is shown in Figure 3.1. Figure 3.2 shows a near normal distribution of intelligence scores obtained on a verbal group test of intelligence (Mehta, 1962) with the mean score of 40.13 (maximum obtainable score = 60), the median score at 40.00 and a SD of 7.42. Out of 975 Ss, 370 were studying in the science group. The rest were studying either commerce or some subjects from the humanities group; they were combined to form the non-science group.

Test of n Achievement

The thematic apperceptive measure of n Achievement consisted of six pictures (B4, D4, A5, A3, C2 and B2; see Appendix 2). The pictures were administered as a group test. The Ss saw a picture for about

20 seconds, turned it upside down and then wrote a story (in a booklet consisting of six sheets, on each of which were printed the usual four questions) in about four minutes.

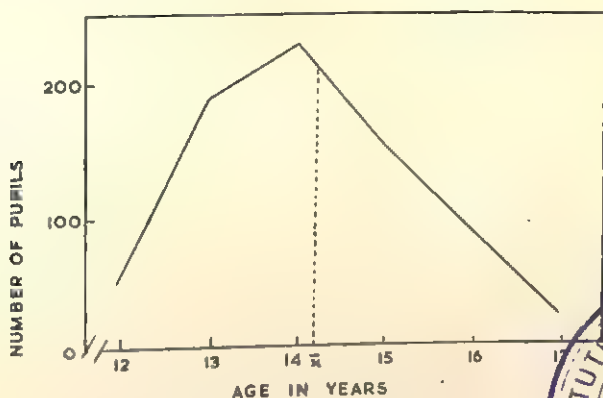


Fig. 3.1. *Distribution of pupils by age*

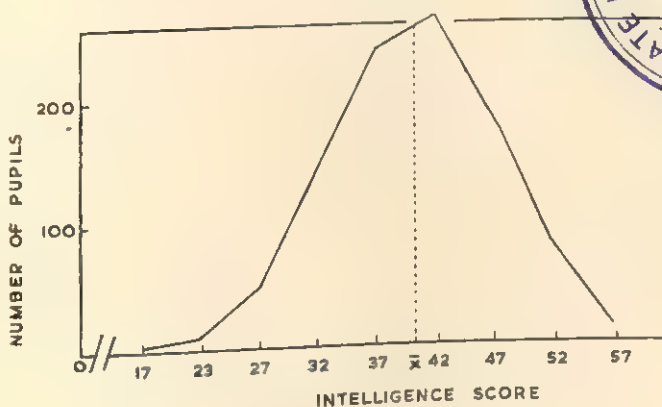


Fig. 3.2. *Distribution of intelligence scores*

Scoring

Nearly 6,000 stories were obtained from about 1,000 pupils. These stories were scored by a team of three scorers. These scorers had earlier obtained considerable scoring practice during the try-out stages in the development of the TAT type instrument. They once again practised their scoring skill. In their final scoring, the scorers followed the standard procedure laid down in the Smith and Feld Manual (1958). Each subject wrote six stories, one each to six cues. These stories were divided into three groups of two stories each, *i.e.*, stories written to the first two cues, the next two cues and the last two cues. Each scorer scored one

group of stories, *i.e.*, he scored stories written by all Ss to the same two cues. This ensured high scoring reliability as seen in Table 3.1.

TABLE 3.1

n ACH SCORING RELIABILITY

Scores	Inter scorer Reliability	Intra-scorer (with an interval of 10 days) reliability*	N
1 and 2	.865	.940	32
2 and 3	.902	.860	32
3 and 1	.890	.920	32

* Related to the first scorer in the pair.

LEVEL OF NEED ACHIEVEMENT

Distribution of n Achievement scores

The scoring system allows a maximum score of 11 and a minimum of -1 on each story. The maximum score obtainable on 6 stories was therefore 66, and the minimum -6. The scores obtained ranged between -6 and 29. They showed a near normal distribution, as seen in Figure 3.3, with some positive skewness. The mean *n* Ach score was 7.14, the median, 7.00 and the SD 5.56.

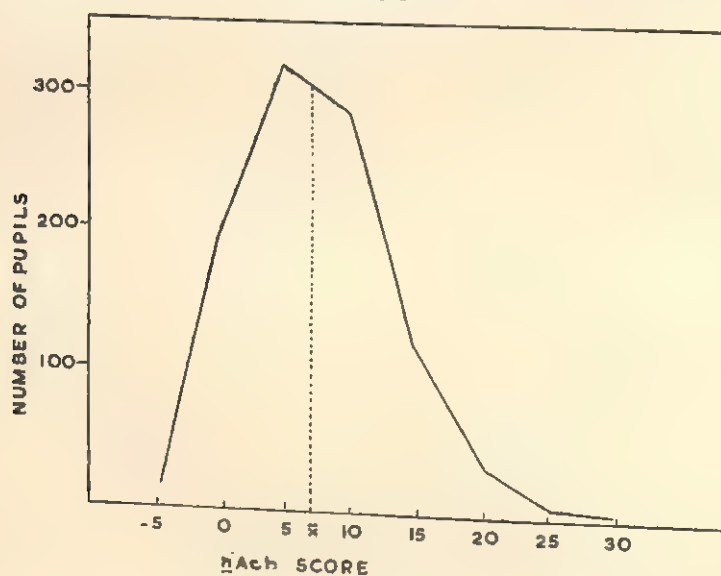
Fig. 3.3. *Distribution of n Ach scores*

TABLE 3.2

FREQUENCY DISTRIBUTION OF *n* ACH SCORES
(N = 975)

<i>n Ach</i>	<i>X</i>	<i>f</i>	% <i>f</i>	Com.% <i>f</i>
-7 ---3	-5	21	2.15	2.15
-2 ---+2	0	191	19.60	21.74
3 --- 7	5	319	32.71	54.46
8 --- 12	10	279	28.61	83.08
13 --- 17	15	121	12.42	95.49
18 --- 22	20	39	4.00	99.49
23 --- 27	25	3	0.30	99.79
28 --- 32	30	2	0.20	100.00

Scores on sub-categories

As stated above, the total *n* Ach score for each S was composed of the points he got for each of the sub-categories. The scoring system permits 10 points, one each for Need (N), Instrumental Activity (I), Positive Goal Anticipation (Ga+), Negative Goal Anticipation (Ga-), Block from outside world (Bw), Block from Within (Bp), Help (H or Nup), Positive emotion (G+), Negative emotion (G-), and Achievement Thema (Ach Th). Every story is first coded for Achievement Imagery (AI) and given one point in case it meets at least one of the following criteria: (i) Competition with some standard of excellence; (ii) Unique accomplishment and (iii) Long-term involvement. Only such stories which contain AI are further scored for the above 10 sub-categories. The sub-categories really form the components of the achievement motive. Such Ss who could verbalize more of these sub-categories, in their stories, got more scores, thereby showing higher *n* Ach than those who verbalized less.

Table 3.3 shows the percentage of stories which were coded as AI, as well as those which were further coded for one or more sub-categories. It also shows that nearly 40 per cent of the total stories were coded as Achievement Imagery. These 2,304 stories were scored further for sub-categories. Seventy-three per cent of these showed Need, 76 per cent showed Instrumental Activity and 64 per cent were scored for Ga+ (about 7 per cent), Ga- (about 3 per cent), and G+ (about 8 per cent). The remaining sub-categories, namely Bp (1.74 per cent), Bw (1.13 per cent), Nup (0.39 per cent), and G- (0.65 per cent) could be scored only very seldom. It seems, therefore, that only three sub-categories — N, I and Ach Th — really contributed to the total *n* Ach score. The lack

of expression of some of the sub-categories could only lower the level of the achievement motive of the respondents. Why were certain components less verbalized than others? What can we say about the level of achievement motivation in high school boys? How does it compare with levels of *n* Achievement elsewhere? As compared to the maximum obtainable score of 66, the scores obtained were apparently low, with a mean *n* Ach score at 7.14. The number of all the stories showing sub-categories like Ga+, Bp, Bw, Nup, G+ and G— were low, as seen in Table 3.3.

TABLE 3.3

PERCENTAGE DISTRIBUTION OF *n* ACH CHARACTERISTICS

<i>Characteristics</i>	<i>Indian Boys^c</i> <i>N</i> = 975	1950 Readers ^b	
		RAPIDLY GROWING ECONOMY (<i>N</i> = 18)	SLOWLY GROWING ECONOMY (<i>N</i> = 21)
Number of stories unrelated to Achievement (UI)	14.31% (838) ^d		
Number of task-related stories (TI)	46.35% (2714)		
Number of Achievement-related stories (AI)	39.34% (2304)		
Need stated (N)	73.18% ^a	14%	13%
Instrumental Activity (I)	76.30 ^a	84	60
Anticipation of scores doubtful or Anticipation of failure (Ga+ and Ga—)	9.72 ^a	37	32
Obstacle in the self, Obstacle in the world (Bp and Bw)	2.87 ^a	21	35
Help by another person (H)	0.39 ^a	11	15
Positive emotion, Negative emotion (G+ and G—)	9.07 ^a	44	33
Thomas (Ach Th)	64.28 ^a	56	51

^a Percentage of number of achievement-related stories

^b Data cited from McClelland (1961, p. 104). Results based on analysis of readers.

^c Verbal measure of *n* Ach

^d Figures in brackets show number of stories.

On the other hand a large number of such stories as were coded as AI showed Need (73.18 per cent), Instrumental Activity (76.30 per cent),

and Thema (64.28 per cent). McClelland (1961) has provided data on n Ach characteristics from his analysis of readers (children's stories) for two groups of countries: one with a rapidly growing economy, and another with a slowly growing economy. These results have been recorded in Table 3.3 for a comparative study. The percentages of stories containing N , I , and Ach Thema in the present survey compare very well with those from McClelland's analysis of readers, although the two studies used different measures of n Achievement. For other characteristics, the results of the present survey were considerably lower as compared both with the results obtained from the rapidly growing economy as well as from the slowly growing economy. For instance, 44 per cent of the readers from the rapidly growing economy and 33 per cent from the slowly growing economy showed emotions either positive or negative whereas only 9.07 per cent of the stories in the present survey showed these characteristics. Fifteen per cent of the readers from the slowly growing economy showed help from another person whereas only 0.39 per cent of the present stories showed these characteristics. Similar is the case with obstacles in the self and/or obstacles in the world, which was found in 35 per cent of the analysed readers from the slowly growing economy and in 21 per cent from the rapidly growing economy as against 2.87 per cent in the present survey. Thus out of 10 n Achievement characteristics for which the stories and readers were compared, the stories in the present survey showed higher results on three characteristics. On the other seven characteristics, the present stories showed considerably lower results when compared with those either from the slowly growing economy or from the rapidly growing economy.

Does the above comparative analysis show that the level of n Achievement in Delhi high school boys was low? The data provided in Table 3.4 gives some answer to this question.

McClelland (1961) has provided data for n Achievement levels in high school and college first year boys from four countries, including India. His results are based on stories written to four pictures. The results obtained in the present survey have been adjusted in Table 3.4 to four pictures to render them comparable. The mean n Ach score obtained in the present survey on Delhi school boys was slightly higher, although statistically not significant, than that obtained on Madras boys in McClelland's study ($t = 0.94$; $P < .20$). It was also a little higher, although not significantly, than that of German boys. It was lower than the n Achievement levels shown by boys in Brazil ($t = 2.62$; $P < .01$) and considerably lower than that shown by the Japanese boys ($t = 3.37$; $P < .01$).

TABLE 3.4

MEANS AND STANDARD DEVIATIONS OF *n* ACHIEVEMENT SCORES IN FIVE COUNTRIES

	A	B	C	D	E	F
<i>n</i> Ach Scores	<i>Japan</i> ^a <i>N</i> = 175	<i>Germany</i> ^a <i>N</i> = 411	<i>Brazil</i> ^a <i>N</i> = 378	<i>India</i> ^a <i>N</i> = 152	<i>India</i> ^b <i>N</i> = 974	<i>USA</i> ^c <i>N</i> = 424
Mean	8.24	4.60	5.47	3.79	4.76	4.76
SD	4.81	5.34	4.24	4.79	3.82	5.11
Mean Age (in years)	15.40	16.00	16.80	16.50	14.21	
SD	1.60	0.90	1.50	0.80	1.34	
	countries		<i>t</i>	<i>P</i>		
	A and E		3.37	.01		
	B and E		0.63	NS		
	C and E		2.62	.01		
	D and E		0.94	.20		

^a Stories written to four pictures by school and college first-year boys. Results taken from McClelland (1961, p. 480).

^b Stories written to six pictures in the present survey. The original mean *n* Ach is 7.14 and SD is 5.73, which have been adjusted here to 4 pictures.

^c Data recorded here from Rosen (1959) found with teenage boys.

McClelland's study was conducted on selected schools and colleges in Madras, perhaps some time in 1960 or earlier. The mean age of the Delhi boys was 14.21 while that of the Madras boys was 16.50. The former came from Class IX and the latter from Class X or Class XI and some from the first year college classes. In view of the difference in the Ss' age and level of schooling, the difference in *n* Achievement levels assumes added significance.

How do we account for the difference in the levels of achievement motivation of Madras and Delhi boys? The *n* Achievement scores derived from stories written to pictorial cues are likely to be influenced by immediate situational cues. The pictures were administered under neutral conditions in both the studies. The possibility of difference in situational and/or instructional cues seems ruled out. The two studies used different sets of pictures portraying different stimuli. This factor could have produced differences in the behaviour evidenced in the stories

obtained. Yet another reason may be that the two samples really differed in their motivational disposition: that the Delhi boys really possessed higher n Achievement than the Madras boys. The Madras University and the colleges of Madras are popularly known for their supply of personnel for the Indian Administrative Service and other Government and professional jobs. The parents of a large number of the boys studying in Delhi schools have come from the Punjab. Quite a few of them have come from West Pakistan after the partition of India. These persons are popularly known for their enterprising nature. Are these parents responsible for developing a higher level of n Achievement in their boys? The answer shall have to wait till further data are available.

The n Ach level in Delhi high school boys seemed well comparable with that of German and U.S. boys. It was lower than that of the Brazilian and Japanese boys. It would be interesting to know about the sources of the differences between the levels of achievement motivation of Indian and other boys. What factors cause these differences? Some data to this effect are presented later in this chapter.

n ACHIEVEMENT, SCHOOL CHARACTERISTICS AND SCHOOL CLASS

How are school characteristics related to n Achievement? Does the type of school that a pupil attends, influence his n Achievement score? There were High AS as well as Low AS schools with different social status in our sample. Table 3.5 reports some basic data on n Ach scores by schools. There were six High SES schools and nine Middle SES schools among the High Achieving group. Among the Low Achieving schools, nine belonged to the Middle SES, and eight were Low SES, of which four came from rural areas near Delhi. The mean n Ach scores ranged between 6.45 and 9.67 for schools High both in AS and SES, between 4.33 and 8.75 for schools with Middle SES and High AS, between 2.65 and 10.00 for schools with Middle SES and Low AS, and between 4.13 and 10.31 for Low SES and Low AS schools. The highest mean n Ach score was obtained by a Low SES school with Low AS and located in the countryside.

There were four rural schools located on the outskirts of Delhi. The rest of the schools were all urban. The location of schools appeared to produce no significant difference in the n Achievement levels of the Ss as seen in Table 3.6. Both urban and rural Ss showed about the same n Achievement level *i.e.*, a mean n Achievement score of 7.14. Figure 3.4 shows identical distribution of n Achievement for urban and rural Ss.

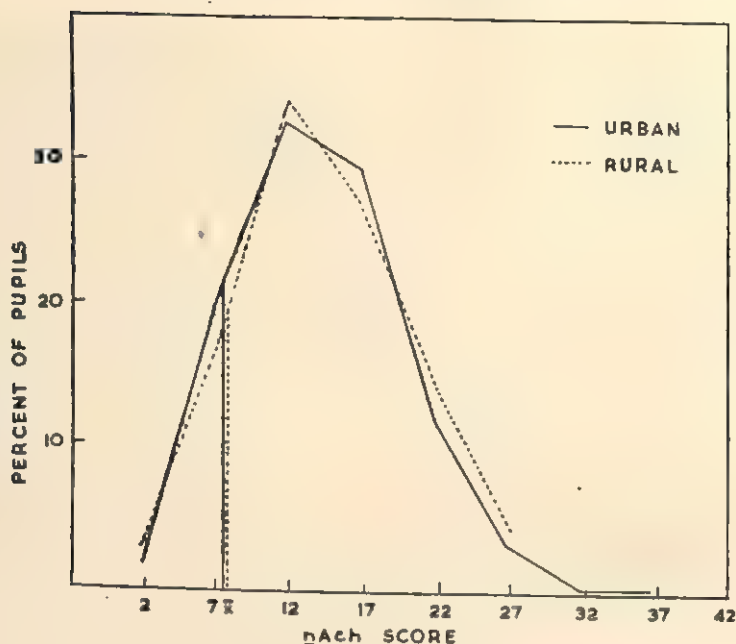


Fig. 3.4. Distribution of *n Ach* scores for rural and urban groups

n Ach by School Achieving Status

Fifteen schools ranked High and 17 Low in their achieving status (AS). The former contributed 551 Ss and the latter 424, with mean *n Ach* scores of 7.48 and 6.70 respectively ($t = 2.10$; $P < .05$), as seen in Table 3.7. The pupils studying in schools with High AS, therefore, appeared to show higher *n Achievement* than those studying in schools with Low AS.

The High AS meant that the pupils of the schools concerned showed higher school achievement at the final secondary school examinations than the pupils of the Low AS schools. The High AS school pupils also showed a higher *n Achievement* level. Can the greater school performance of the High AS schools be attributed to their *n Achievement*? Or do the High AS schools provide a better educational environment which boosts both the *n Achievement* as well as the school achievement? As seen in Table 3.5, all schools which were rated High in SES (*i.e.*, schools catering for boys from the higher socio-economic sections of the community) showed High AS. In fact, the Low AS school group included no High SES school. Is it really the High SES character of the pupils in High AS schools which is responsible for boosting both their *n Achievement* level and the school performance? The results in Tables 3.8, 3.9 and 3.10 provide some information in this regard.

TABLE 3.5

MEAN *n* ACHIEVEMENT SCORES FOR SCHOOLS BY THEIR ACHIEVING AND SOCIO-ECONOMIC STATUS

<i>School SES</i>	<i>School Code</i>	<i>N</i>	<i>Mean n Ach</i>	<i>Median n Ach</i>	<i>SD</i>
HIGH**	07	39	8.46	8.41	5.68
	12	33	8.94	9.42	6.00
	09	30	9.67	10.28	5.47
	08	31	7.58	6.25	5.94
	10	38	6.45	6.50	4.57
	04	47	7.34	7.79	4.93
MIDDLE**	13	40	8.75	8.75	5.89
	15	33	7.27	8.09	3.91
	16	44	6.59	5.94	5.41
	19	50	7.40	7.78	6.50
	06	30	4.33	3.61	4.42
	27	34	9.12	8.12	6.36
	11	28	5.71	6.39	5.46
	03	38	7.24	6.03	5.70
	01	36	7.08	7.11	5.05
MIDDLE	20	35	6.43	6.50	5.29
	18	30	8.50	8.93	4.31
	02	20	9.75	8.93	7.33
	17	34	4.56	3.75	5.73
	14	34	2.65	2.19	3.88
	05	34	7.06	6.14	6.66
	21	27	4.81	5.36	5.69
	26	23	8.26	8.33	6.85
	28	05	10.00	12.50	7.07
Low	25	16	6.56	6.07	4.67
	22	17	9.70	10.00	5.28
	24	25	6.60	6.14	4.84
	23	27	6.80	6.59	3.99
	32*	15	6.33	6.07	4.64
	31*	16	10.31	10.00	5.44
	29*	23	4.13	4.17	5.24
	30*	42	8.21	8.21	5.54

* Rural Schools

** High AS Schools. The rest are Low AS schools.

ACHIEVEMENT MOTIVE IN HIGH SCHOOL BOYS

TABLE 3.6

MEAN *n* ACH BY GEOGRAPHICAL LOCATION OF SCHOOLS

	<i>N</i>	<i>No. of schools</i>	<i>Mean n Ach</i>	<i>t</i>	<i>P</i>
Rural	97	4	7.29	.27	NS
Urban	878	28	7.12		
Combined	975	32	7.14		

The school SES was found to be significantly related to the pupil's *n* Achievement levels ($F = 3.40$; $P < .05$). The Ss from the High SES and Low SES schools revealed similar *n* Achievement; the former, however, showed higher *n* Ach than the Ss from the Middle SES schools ($t = 2.56$; $P < .05$), as seen in Table 3.9. The High SES schools can be assumed to provide better educational facilities than the Low SES schools. In fact, five of the six High SES schools (see Appendix 1) are private schools known for better educational facilities. The difference in educational facilities between High SES and Low SES schools did not,

TABLE 3.7

MEAN *n* ACH BY SCHOOL ACHIEVING STATUS

<i>Achieving Status</i>	<i>No. of pupils</i>	<i>No. of schools</i>	<i>Mean n Ach</i>	<i>t</i>
High	551	15	7.48	2.10*
Low	424	17	6.70	
Combined	975	32	7.14	

* Significant at .05 level.

therefore, seem to produce a difference in their pupils' achievement motivation, although these facilities do seem to produce differences in school achievement (all High SES schools showed High AS and all Low SES schools, Low AS). The High and Low SES schools also differed in the verbal intelligence of their pupils (chi-square = 54.25; $df = 14$; $P < .001$). The difference in intelligence levels may be another factor

contributing to the difference in the academic achievement level of the High and Low SES schools. How then can we explain the difference in the n Achievement level of Ss from High SES schools and those from Middle SES? Which factors helped to bring up the n Achievement in Low SES schools to the same level, if not higher than, that of the Ss in the Middle SES schools? With AS controlled, the High SES and Low SES schools separately showed higher n Ach scores than the Middle SES schools, as seen in Table 3.10. The Ss from schools with High SES (HSES) and High AS (HAS) showed only a slightly higher n Achievement level than the Ss from schools with LSES and LAS. Ss from High SES schools as well as from Low SES schools showed higher mean n Achievement than Middle SES schools (respectively, $t = 1.72$; $P < .05$ and $t = 1.69$; $P < .05$). Subjects studying in schools with High SES and HAS showed a significantly higher n Ach score than those studying in schools with Middle SES and LAS ($t = 3.23$; $P < .01$).

The school AS had shown a significant relationship with n Achievement (see Table 3.7), with the Ss from schools with High AS showing higher mean n Achievement. Table 3.10 shows, however, that with SES controlled the achieving status failed to show significant difference in n Achievement. On the other hand, Ss studying in schools with HSES and HAS showed little difference in n Achievement from those studying in schools with LSES and LAS. The results, therefore, point out the school SES, rather than AS, as an important factor so far as n Achievement is concerned. Furthermore, the school SES was found to be related to n Ach but not in a linear way. The Ss from HSES as well as LSES schools showed about the same mean n Achievement.

TABLE 3.8

COMPLETE ANALYSIS OF VARIANCE IN MEAN n ACH BY SCHOOL SOCIO-ECONOMIC STATUS

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
Between Groups	2	222.0812	111.0406	3.3970*
Within Groups	971	31739.6488	32.6875	
Total	973	31961.7300		

* Significant at .05 level

ACHIEVEMENT MOTIVE IN HIGH SCHOOL BOYS

TABLE 3.9

MEAN *n* ACH BY SOCIO-ECONOMIC STATUS OF SCHOOLS

<i>SES</i>	<i>No. of pupils</i>	<i>Mean n Ach</i>	<i>Mean Difference</i>	<i>t</i>	<i>P</i>
1. High	218	7.98	1 and 2	1.41	NS
2. Low	182	7.21	1 and 3	2.56	.05
3. Middle	575	6.80			
Combined	975	7.14			

The results point out that the better known schools, with better and/or more educational facilities, show higher academic achievement than other schools, may be, by attracting pupils with high levels of intelligence. But the pupils from High SES schools did not show higher achievement motivation than those studying in Low SES schools with lesser educational facilities. We shall have to turn to the pupil's home and non-school environment to understand the sources of the differences and/or similarities in levels of their *n* Achievement.

TABLE 3.10

MEAN *n* ACH BY SCHOOL SES AND AS.

<i>Schools</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>
A. High SES/High AS	218	7.98	5.41
B. Middle SES/High AS	333	7.15	5.55
C. Middle SES/Low AS	242	6.33	5.47
D. Low SES/Low AS	181	7.21	5.02

<i>Schools</i>	<i>t</i>	<i>P</i>
A and B	1.72	.05
A and C	3.23	.01
A and D	1.45	.10
B and C	1.75	.05
B and D	0.12	NS
C and D	1.69	.05

n Achievement and father's socio-economic status

As stated earlier, each S got a score for his father's educational level (EL), occupational group (OG) and monthly income. These three scores were combined to yield a composite score and categories of High, Middle and Low socio-economic status (Kuppuswamy, 1962). The distribution of Ss in these three categories of SES and their mean *n* Achievement scores and standard deviations are seen in Table 3.11. The results, both the mean scores as well as their standard deviations are strikingly similar ($F = 0.22$; NS), as seen in Table 3.12. Fig. 3.5. shows an interesting comparison of mean *n* Achievement by school SES and by pupil SES.

TABLE 3.11

MEAN *n* ACH SCORES FOR DIFFERENT SES CLASSES

SES	N	Mean	SD
High	52	7.31	5.92
Middle	506	7.27	5.73
Low	285	7.00	5.64
Over-all	843*	7.18	5.71

* The rest of the Ss did not check the SES Scale.

The mean *n* Achievement scores for the High, Middle and Low SES as well as for the total sample was about 7.00 and their standard deviations, near about 6.00. It was, therefore, clear that the fathers' SES was showing no relationship with the boys' level of *n* Achievement.

n Achievement score and father's income

Every fifth of those Ss, in whose case data on the father's income were available, composed a small sub-sample for studying the relationship, if any, between *n* Ach and the father's income. It was representative of Ss from all the 32 schools. The mean *n* Achievement score of this sub-sample ($N = 163$) was 7.27 against the larger sample mean of 7.8. The two mean scores were almost identical ($z = .1753$). The Ss, thus obtained, were distributed in five categories, according to their fathers' monthly income. This is seen in Table 3.13 along with their mean *n* Achievement scores and standard deviations.

TABLE 3.12

ANALYSIS OF VARIANCE IN n ACHIEVEMENT SCORES BY PUPILS' SES

Source	df	SS	MSS	F	P
SES Class	2	0.5770	0.2885	0.2205	NS
Error	840	1098.7777	1.3080		
Total	842	1099.3547			

The Ss belonging to income category II, *i.e.*, the category next to the highest income group, showed the highest mean n Achievement score of 10.26 with a SD of 7.52. The Ss coming from the highest income group (*i.e.*, those whose fathers had a monthly income of Rs. 750 and above) showed the lowest mean n Achievement of 6.00 with a SD of 4.71 which seemed lower than that of the Ss from the lowest income category (income of Rs. 50 and below). The variations in n Achievement levels were, however, not significant ($F = 1.83$; NS).

The fathers' income is obviously a very important variable. As a matter of fact, the High SES schools tend to cater for the higher income groups and the Low SES schools for the lower income groups. No difference was found between the n Achievement levels of boys in High SES and those in Low SES schools. It was, therefore, not surprising to find no difference in the n Ach levels of boys from different income groups. It is perhaps not so much the income as such, which is important here, as how it is spent.

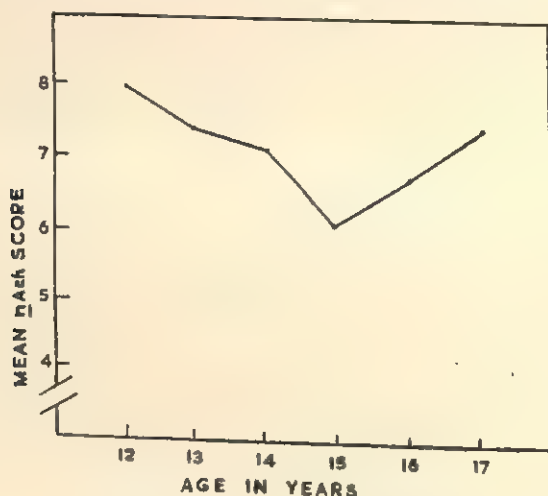
Fig. 3.5. Mean n Ach Scores by school SES

TABLE 3.13

MEAN n ACHIEVEMENT SCORES AND STANDARD DEVIATIONS BY
FATHERS' INCOME GROUPS

Monthly income group	Categories	N	Mean n Ach	SD
Highest (Rs. 750 and above)	I	9	5.00	4.714
	II	19	10.26	7.517
	III	39	6.79	4.210
	IV	72	7.29	5.510
Lowest (Rs. 50 and below)	V	24	6.25	6.775
Total		163	7.27	

TABLE 3.14

ANALYSIS OF VARIANCE IN n ACHIEVEMENT SCORES BY FATHERS' INCOME GROUPS

Source of Variance	df	SS	MSS	F	P
Between classes	4	250.26	62.565	1.8281	NS
Within classes	158	5407.41	34.224		
Total	162	5657.67			

The fathers' income is an important component in Kuppaswamy's socio-economic status scale, along with two other components namely: the fathers' educational level and their occupational groups. Since the first component, *i.e.*, the fathers' income showed no significant relationship with the n Ach levels of the Ss, it might have also lowered the significance of the relationship of n Achievement with the composite SES.

Mean n Ach by fathers' educational level

Table 3.15 shows mean n Ach by fathers' educational level (EL). The Ss whose fathers (and/or guardians) possessed professional or semi-professional qualifications or some kind of university education tended to show higher n Ach scores than others. Another interesting thing revealed by Table 3.15 is that Ss whose fathers either possessed little education or no education showed higher n Ach than those whose fathers possessed a high school education.

TABLE 3.15

PUPILS' MEAN *n* ACH SCORES BY FATHERS' EDUCATIONAL LEVELS

<i>Fathers' Educational level (EL)</i>	<i>Code No.</i>	<i>N</i>	<i>Mean n Ach score</i>	<i>SD</i>
Professional, M.A., etc.	1	117	8.08	6.20
B.A., etc.	2	134	8.36	5.59
Intermediate	3	46	7.93	5.47
High School	4	224	6.18	5.18
Middle School	5	96	6.87	6.05
Primary	6	133	6.88	5.61
Illiterate	7	94	7.13	5.81
Over-all		844	7.18	5.71

An analysis of variance test revealed a very significant *F* value of 2.85, as seen in Table 3.16. It was clear therefore that the fathers' EL had something to do with the *n* Achievement levels of the Ss, but Figure 3.6 also shows that this relationship was not linear. The *n* Ach levels did not increase with the increasing educational levels of the subjects' fathers. It was a curvilinear relation with higher *n* Ach at the extremes of the scale. The *t*-test values recorded in Table 3.17 make this clear.

TABLE 3.16

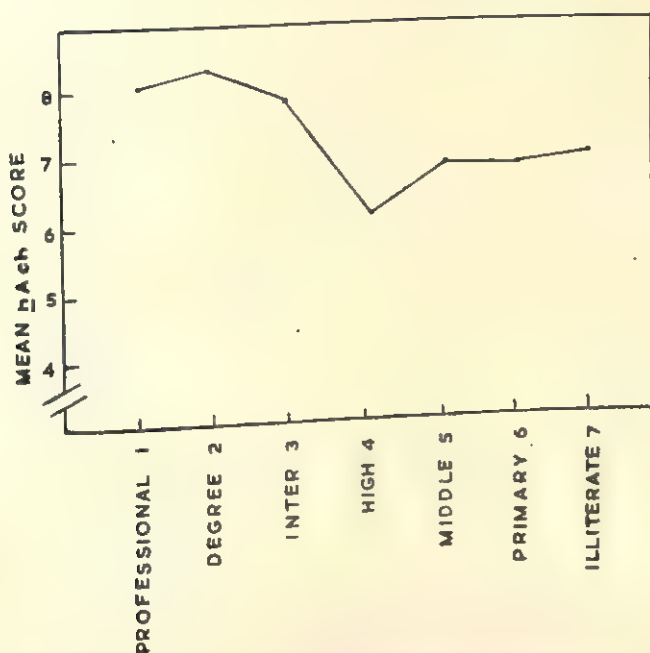
COMPLETE ANALYSIS OF VARIANCE IN *n* ACH SCORES BY FATHERS' EDUCATIONAL LEVELS

<i>Source of Variance</i>	<i>df</i>	<i>SS</i>	<i>MSS</i>	<i>F</i>	<i>P</i>
Between EL Groups	6	22.0064	3.6677	2.85	.01
Within Groups	837	1077.5387	1.2873		
Total	843	1099.5451			

TABLE 3.17

n Ach Mean Difference by EL Groups

<i>EL Groups</i>	<i>t</i>	<i>P</i>
Between 2 and 4	18.60	.001
3 and 4	10.29	.001
3 and 5	5.00	.001

Fig. 3.6. Distribution of *n* Ach scores by fathers' Educational Level

The Ss whose fathers had taken a university degree showed a very significantly higher *n* Ach than those whose fathers had a high school education. The latter's *n* Ach level was also significantly lower than that of those Ss whose fathers had education up to the intermediate level. The latter Ss also showed a significantly higher *n* Ach level than those whose fathers had had a middle school education. The results in Tables 3.15 and 3.17 point out an interesting trend. Do pupils whose fathers have had only little or no education possess a higher *n* Ach level than those whose fathers have had a secondary education? To seek

an answer to this question, the Ss were grouped into three categories as follows:

1. Those whose fathers possessed either professional education or a university degree or education up to the intermediate level were categorized as the High education group.
2. Those whose fathers had had secondary education were placed in the Secondary education group.
3. The rest were categorized as the Low education group.

The mean n Ach results with respect to those groups are shown in Table 3.18. The tests confirmed that, the Ss belonging to the 'High' group showed considerably higher n Ach than those belonging to the 'secondary' group. All the differences were significant beyond .001 level. It could therefore be concluded that: (i) the fathers' or guardians' educational levels showed significant relationship with the Ss' n Ach levels; (ii) this relationship was not linear, *i.e.*, the n Ach did not uniformly increase with the fathers' increasing educational levels; and (iii) the Ss whose fathers showed Low education showed higher n Ach levels than those whose fathers had secondary education. The V-shaped curve in Figure 3.6 shows this important result.

TABLE 3.18

n ACH MEAN DIFFERENCES BY FATHERS' EDUCATIONAL LEVELS

Fathers' EL	N	Mean n A h	Groups	t	P
1. High education	297	8.1818	1 and 2	20.2900	.001
2. Secondary education	224	6.1830	3 and 2	7.7287	.001
3. Low education	323	6.9504	1 and 3	13.1574	.001

n Ach and fathers' occupations.

Table 3.19 records pupils' mean n Ach scores by their fathers' occupations. Several results in this table draw attention. The highest mean n Ach score was shown by Ss whose fathers (or guardians, if the father not alive) were doing some semi-professional work. This included secondary school teachers, college lecturers, draughtsmen, research and laboratory assistants, junior government officers, insurance inspectors and agents. Next in order were the Ss whose fathers were skilled

or semi-skilled workers. Skilled workers included persons like carpenters, mechanics, locomotive or car drivers and telephone and telegraph operators. Unskilled workers were persons like peons, watchmen and domestic servants. The fathers of Ss in the professional group included persons like engineers, doctors, university readers, professors, senior government officers, managers of commercial firms, big business men, scientists, newspaper editors and advocates ($F = 4.93$; $P < .01$, as seen in Table 3.20).

TABLE 3.19

MEAN n ACH SCORES FOR FATHERS' OCCUPATIONAL GROUPS

Occupational Group	Code No.	N	Mean score	SD
Professional	1	139	6.29	5.79
Semi-professional	2	130	8.23	6.01
Clerical-Petty	3	320	6.18	5.42
Shopkeepers	4	122	7.72	5.85
Skilled workers	5	75	6.07	6.34
Semi-skilled workers	6	57	7.81	5.46
Unskilled workers				
Over-all		843	7.17	5.70

TABLE 3.20

ANALYSIS OF VARIANCE IN n ACH SCORES BY FATHERS' OCCUPATIONAL GROUPS

Source of Variance	df	S	MSS	F	p
Occupational Groups	5	31.3929	6.2786	4.9313	.01
Error	837	1065.7032	1.2732		
Total	842	1097.0961			

Table 3.19 strikingly shows that the mean n Ach level of Ss belonging to the semi-professional group was consistently higher than that of Ss belonging to any other group. The Ss whose fathers belonged to the skilled workers' group showed higher mean n Ach score than those whose fathers belonged to the groups of professional, clerical, shopkeeper and semi-skilled workers groups. Their n Ach score was lower than that of subjects whose fathers belonged to the semi-professional group

and about the same as that of Ss coming from the unskilled workers group. Subjects coming from the unskilled workers' group showed a higher mean n Ach score than those coming from clerical and professional groups, but they showed a lower n Ach level than those from the semi-professional groups; Figure 3.7 shows this interesting zigzag trend in Ss' n Ach scores by their fathers' occupational groups.

TABLE 3.21

t -VALUES OF n ACH MEAN DIFFERENCES BY FATHERS' OCCUPATIONAL GROUPS

Occupational Groups	1	2	3	4	5	6
1	—					
2	13.50**					
3	—	17.57**				
4	9.96**	3.38**	13.09**			
5	—	12.09**	0.78	9.36		
6	8.46**	2.27*	—	—	0.92	—

* Significant at .05 level

** Significant at .01 level

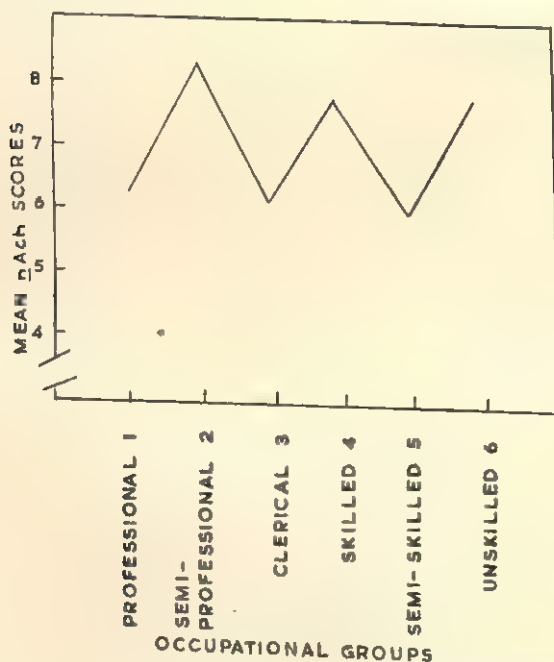


Fig. 3.7. Mean n Ach scores by fathers' Occupational Groups

It is clear therefore from the results recorded in Tables 3.19 and 3.21 that such Class IX boys whose fathers were following some semi-professional vocation showed a consistently higher mean n Ach level than other boys.

n Achievement in lower middle class boys (clerical, petty shopkeepers' and shop employees' groups) by their fathers' educational level

Boys of fathers with Low educational level were found to have a lower n Achievement level than boys of fathers with High EL and a higher n Ach level than boys of fathers with Middle EL (Table 3.18). The data were analysed for the different EL groups within the lower middle-class group alone (occupational group of clerks, petty shopkeepers and shop employees), and are presented in Table 3.22. The boys of fathers with High EL continued to show higher n Achievement, but the boys of fathers with Low EL failed to show higher n Achievement than those of the boys of fathers with Middle EL.

TABLE 3.22

MEAN n ACHIEVEMENT IN LOWER MIDDLE-CLASS BOYS*—BY THEIR FATHERS' EDUCATIONAL LEVELS

Fathers' EL	N	Mean n Ach	t Value	P
A. High	41	7.41	A and B 2.47	.05
B. Middle	40	3.70	A and C 3.20	.01
C. Low	39	3.50	B and C 0.88	NS

* From a small randomly drawn sub-sample of 273 Ss from all occupational groups.

n Achievement of boys of fathers with Low EL by fathers' occupational groups

The boys with a lower middle-class background had shown lower n Achievement level than those with a working-class background (*i.e.*, whose fathers were in the skilled and the unskilled occupational groups, as seen in Table 3.19). This result was further confirmed when data were analysed after controlling the fathers educational levels, as seen in Table 3.23. The boys of lower middle-class fathers with Low EL

showed a considerably lower n Achievement than boys of working-class fathers with Low EL ($t = 3.39$; $P < .01$).

TABLE 3.23

MEAN n ACH OF BOYS WITH FATHERS' OF LOW EL BY FATHERS' OCCUPATIONAL GROUPS

<i>Occupational Groups</i>	<i>N</i>	<i>Mean n Ach</i>	<i>Mean Differences</i>	<i>t</i>	<i>P</i>
3. Clerical/Shopkeepers	39	3.50	3 and 4	3.85	.01
4. Skilled workers	33	7.20	3 and 5	2.25	.05
5. Semi-skilled workers	21	6.41	3 and 6	1.08	NS
6. Unskilled workers	8	5.59	4 and 6	0.73	NS
Blue collar workers (4, 5 and 6 combined)	62	6.92	A and 3	3.39	.01

These boys (*i.e.*, of working-class fathers with Low EL) tended to show somewhat lower n Achievement, although statistically not significant, than the boys of lower middle-class fathers with High EL. An examination of the results in Tables 3.22 and 3.23 suggests that the fathers' educational level as well as occupational status both tended to show an important bearing on n Achievement of high school boys. In the case of boys in the clerical group, the boys of fathers with higher EL showed higher n Ach than the other boys in the group. In the lower EL group, boys of fathers with a working-class occupation shared higher n Ach than the other boys in the group.

SCHOOL, SOCIAL CLASS AND n ACHIEVEMENT CHARACTERISTICS

As reported above, the n Achievement levels showed differences for certain school and social-class variables. Do the n Achievement components also show any definite differences for school and social class?

Interrelationship of SES characteristics

The results reported above indicate curvilinearity in n Achievement both by fathers' occupational groups and their educational levels. The sons of fathers in semi-professional occupations and of those doing skilled work showed higher n Achievement as compared to sons of fathers engaged in some clerical work. Similar curvilinear results were obtained

for sons of fathers with High EL, Secondary EL and Low EL. The above results suggested a high positive correlation between fathers' educational levels (EL) and occupational groups (OG). The correlations between the two (*i.e.*, EL and OG) was .754 ($N = 844$), and these respectively showed r 's of .820 and .815 ($N = 844$) with the composite pupil SES. The results showed that any one of the two, or both EL and OG, were indicators of the pupil SES.

Mean n Achievement by pupils' age

The Ss belonged to the same school grade, *i.e.*, Class IX, but to different age-groups. Four Ss were below the age of 12 years; four were 18 years old; two, 19 years old; and one was 20 years old. These pupils were eliminated from the analysis because of inadequate numbers. Some pupils did not indicate their age, and therefore they, too, had to be omitted from the analysis. The mean n Achievement scores obtained from the remaining Ss in the age-group 12 to 17 are shown in Figure 3.5.

Figure 3.5 reveals an interesting trend in n Achievement by age-groups. The highest mean n Achievement of 8.02 was obtained by 12-year old boys. The mean n Achievement scores show a V-shaped curve. However, an analysis-of-variance test revealed a non-significant value of 1.45, as seen in Table 3.24.

TABLE 3.24

ANALYSIS OF VARIANCE IN n ACH SCORES BY AGE

<i>Source of Variance</i>	<i>df</i>	<i>SS</i>	<i>MSS</i>	<i>F</i>	<i>P</i>
Between Groups	9	415.1101	46.1233	1.45	NS
Within Groups	744	23707.3037	31.8646		
Total	753	24122.4138			

The curve in Figure 3.5 is similar to the curves in Figures 3.6 and 3.7, which indicate trends in n Achievement by fathers' educational levels and occupational groups. Do more of the younger boys in Class IX have fathers who have High EL or are engaged in some kind of semi-professional occupation? And do more of the older boys in Class IX have fathers who have a Low EL and/or are engaged in some kind of

skilled or unskilled work? In any case, the results by age-groups further indicated curvilinearity in n Achievement.

Task-related imagery

As seen in Table 3.3 nearly 46 per cent of the obtained stories were coded as task-related. These stories contained some imagery which was closer to achievement but which failed to meet any of the criteria for Achievement Imagery. About 37 per cent of the subjects from High SES schools, 31.3 per cent from Middle SES schools and 23.8 per cent from Low SES schools showed three or more of their stories as task-related. The Low SES school Ss tended to show significantly lower number of TI stories (chi-square = 16.32; $df = 6$; $P < .02$) as seen in Table 3.25. These results supported the earlier trend for the Low SES school Ss to show higher n Achievement (and lower TI) than subjects from Middle SES schools.

TABLE 3.25

CONTINGENCY TABLE OF SCHOOL SES AND TI SCORES.

Number of TI stories	Percentage of Boys School-SE Status			Total	
	High	Middle	Low	N	%
Nil	3.2	4.7	8.8	50	5.1
One-two	40.1	38.7	44.8	391	40.1
Three	19.4	25.5	22.7	230	23.6
More than three	37.3	31.3	23.3	303	31.3
N =	217	576	181	974	
% =	22.3	59.1	18.6		

Chi-square = 16.322; $df = 6$; $P < .02$

Subjects studying in rural schools showed a considerably lower number of TI stories than those studying in urban schools (chi-square = 39.24; $df = 3$; $P < .001$). About 34 per cent of the urban schools Ss showed three or more of their stories to be task-related as against only 8.2 per cent of the rural Ss. The fathers' educational level also showed significant relationship with the number of TI stories produced by the subjects

(chi-square = 50.44; $df = 21$; $P < .001$). Here again, the trend was more TI stories from boys of fathers with High EL as well as from those of fathers with Low EL. Subjects with Low SES showed lesser stories with TI than subjects from High and average SES as seen in Table 3.26. The boys of fathers with semi-professional, clerical, semi-skilled and un-skilled occupations tended to show higher rate of TI stories. (chi-square = 48.25; $df = 18$, $P < .001$). The school AS did not show any difference in the rate of TI stories.

TABLE 3.26
CONTINGENCY TABLE OF SES AND TI SCORES

Number of stories with Task Imagery	Percentage of Boys SES				Total	
	Not. Av.*	High	Average	Low	N	%
Nil	11.5	3.8	3.6	5.9	50	5.2
One-Two	53.1	34.0	40.0	35.3	381	39.8
Three	24.8	26.4	21.8	26.2	227	23.7
More than three	10.6	35.8	34.7	32.5	299	31.2
N =	113	53	505	286	957	
% =	11.8	5.5	52.8	29.9		

Chi-square = 38.156; $df = 9$; $P < .001$

* not available

Need

As stated earlier, Need was one component which was found in a larger number of stories. About 52 per cent of the subjects showed two or more stories containing Need as one of the components; 28.7 per cent showed one story with Need. Only 19.1 per cent of the stories were found to contain no Need component.

The father's educational level (EL) and occupational group (OG) were found to be significantly related to the verbalization of Need in the stories obtained (chi-square = 32.75; $df = 21$; $P < .05$ and chi-square = 38.03; $df = 18$; $P < .01$ respectively). The boys of fathers with High EL and of those with Low EL tended to show greater expression of Need than boys of fathers with Middle EL. Similarly, boys of

fathers in professional, skilled and unskilled occupational groups showed a higher rate of Need than the Ss from the clerical group. This pattern was similar to the one found for n Ach. The school AS and SES and the pupils' SES did not show any significant relationship with expression of Need.

Instrumental activity

Instrumental Activity was another strong component which was found verbalized in a large number of stories. Only 15.5 per cent of the subjects showed stories containing no Instrumental Activity; the rest contributed one or more stories containing Instrumental Activity.

The school SES showed significant relationship with verbalization of Instrumental Activities. The Ss from High SES and Low SES schools tended to show greater verbalization than those from Middle SES schools. The school AS, pupils' SES and their fathers' EL and OG did not show any significant relationship with this component.

Blocks from Within and Outside

Blocks from Within and Without (Bp and Bw) belonged to the category of components which were shown by very few stories. Only 3.2 per cent of the subjects showed some Bp and 2.5 per cent showed some Bw.

The school AS and SES showed significant relationship with the verbalization of Blocks from Within (Bp). About 4.5 per cent Ss from High AS schools as against 1.4 per cent from Low AS schools showed slight verbalization of some personal shortcoming or block (chi-square = 7.49; $df = 1$; $P < .01$). About 6.5 per cent of the subjects from High SES schools, 2.6 per cent from Middle SES and 1.1 per cent from Low SES schools showed this behaviour as evidenced in their stories (chi-square = 10.69; $df = 2$; $P < .01$). The fathers' occupational group also showed significant relationship with this category (chi-square = 13.26; $df = 6$; $P < .05$). About 7.2 per cent and 5.4 per cent Ss respectively from professional and semi-professional groups showed this component in their stories as against 2.2 per cent from the clerical, 2.5 per cent from the skilled, 2.5 per cent from the semi-skilled and 1.8 per cent from the un-skilled occupational groups. The school location, pupils' SES and their fathers' educational level did not show any significant difference in this respect. About 6.2 per cent of the rural Ss, as against 2.1 per cent of the urban Ss, showed some verbalization of outside difficulties (Bw) (Chi-square = 6.22; $df = 1$; $P < .02$). It was

interesting to find more High SES Ss giving expression to personal difficulties (example: 'He became nervous and failed at the exam.') than those with Low SES. It was equally interesting to see rural Ss giving expression to environmental difficulties (example: owing to poverty he could not go to college) more than the urban.

Emotions

Emotions, either positive or negative, was another component shown by very few stories. About 17 per cent of the subjects showed positive emotion (G+) and 13 per cent showed negative emotion (G-). The fathers' occupational group showed significant relationship with verbalization of positive emotion (G+), and school AS with negative emotion (G-). About 22 per cent subjects from the professional group and 27.7 per cent from the semi-professional group showed some G+ as against 12.2 per cent from the clerical, 13.9 per cent from the skilled, 10.7 per cent from the semi-skilled, and 14.0 per cent from the unskilled occupational groups (chi-square = 21.81; $df = 6$; $P < .01$). Two per cent Ss from the High AS schools, as against 0.5 per cent from the Low AS schools, showed some G- in their stories (chi-square = 4.19; $df = 1$; $P < .05$).

Help

The over-all tendency to verbalization of this category was very low. Only 0.7 per cent of the total sample showed evidence of this behaviour (getting help from others) in their stories. The boys studying in schools with High AS expressed this more than those in Low AS schools (chi-square = 5.40; $df = 1$; $P < .02$).

Achievement thema

The school AS, the fathers' OG and EL showed significant relationship with the evidence of Achievement Thema (Ach Th). More boys in High AS schools produced stories with achievement as their central thema than those in Low AS schools (chi-square = 7.94; $df = 3$; $P < .05$). More boys of fathers with High EL showed this component than those of fathers with Low EL (chi-square = 22.17; $df = 21$; $P < .01$). More Ss from the semi-professional, skilled and unskilled workers' groups showed this behaviour than those from other occupational groups (chi-square = 21.43; $df = 18$; $P < .01$).

The over-all expression of Goal Anticipation and positive affect was low, with 5.6 per cent Ss showing some Ga-, 13.6 per cent some Ga+

and 16.6 per cent some G+. The school and social-class variables showed no difference in the expression of these components.

Some implications

The over-all low expression of certain components in stories written to pictures and a large number of task-related (TI) stories, raise several questions of theoretical and practical importance. Do the teen-age boys tend to suppress verbalization of Goal Anticipation, Affect, Help and Blocks? What are those factors which prompt this suppression? Is this a methodological question associated with the use of thematic apperception, a particular set of stimuli and/or questions? While the expression of some of the above components tends generally to be low, as seen, for example, in the analyses of readers reported in Table 3.3, these have been extremely low in the present study. It would be worthwhile to attempt answers to questions such as those raised above.

The expression of n Ach components and the production of TI stories has practical implications for achievement motivation training. The TI stories stand closer to AI stories. With a little training, such Ss might be able to raise their task-related imagination to an achievement-related one. Similarly specific training to verbalize components would lead to higher n Achievement.

DISCUSSION

What then is level of n Achievement in Indian high school boys? Comparatively speaking, the Delhi school boys with a mean age of about 14 years were found to show an n Achievement level comparable with the levels shown by teen-age boys in the German and U.S. studies, and lower than the levels shown by Japanese and Brazilian boys. The results were perhaps not strictly comparable as different pictures were used in the different studies. Further, six pictures were used in the present study and the average score was adjusted to four pictures for comparison with the results obtained in other studies on 4 pictures. Notwithstanding these limitations, the results point out interesting trends. The USA and Germany represent the most advanced western capitalist economy. These countries have a long history of industrialization and technological advance. The facilities and opportunities provided to youth in these countries have been undoubtedly more than those available to Indian boys. India has suffered long economic and political exploitation under a foreign power. With a very low per

capita income, we Indians have long suffered poverty. Our economy is still underdeveloped and at this moment we are struggling to reach the 'take off' point in industrialization and agriculture. Educational facilities in India have, therefore, inevitably been limited. Under these conditions, it is remarkable to find Delhi boys showing an *n* Achievement level as high as or equal to that shown by the German and U.S. boys.

The Japanese result has been reported by McClelland with a footnote:

By mistake another picture highly saturated with achievement cues, was presented first in Japan showing a scientist working in a laboratory. The results for this picture are not included but it may have affected the achievement imagery in subsequent stories, though probably not to an extent sufficient to account for the much higher average *n* Achievement score in Japan. Also the pictures were redone in Japan to present Japanese faces and clothing (McClelland, 1961, p. 480).

Japan is the one Asian country which has shown rapid and significant economic growth during this century. A higher *n* Achievement in Japanese boys is, therefore, understandable in this context. Brazil, unlike Japan, is a western country and, like India, a developing one. It has also, like India, suffered economic exploitation by outside powers. The Brazilian people have also been struggling to develop. The Delhi high school boys, however, showed a slightly lower level of *n* Achievement as compared to the Brazilian boys.

The above comparisons were made on the basis of certain available data in order to get a clearer understanding of the *n* Achievement level obtained in the case of Indian high school boys. To sum up, their achievement motivation seemed well comparable with that of boys from some industrially advanced countries, but lower than that of the boys in some Asian countries like Japan and in some other developing countries like Brazil.

Differences in n Achievement levels by social class

Research studies, particularly in the U.S.A. (Rosen, 1956 and 1959; Strodbeck, 1958; Veroff, 1960) have found Ss from the middle social class to have higher *n* Achievement than those from the working class. The present investigation, however, has revealed a different trend. Sons of fathers having 'Low' education and those of fathers doing some kind of skilled or unskilled work (working class—'blue collar') appeared to show higher *n* Achievement than those whose fathers had secondary education and those whose fathers were reported as doing some kind of clerical work either in the Government or outside. (Petty shopkeepers

were also included in this category). The Low SES Ss (SES on the basis of the fathers' EL and OG) therefore revealed higher n Achievement than the Middle SES Ss. This finding got confirmation from the results by school SES. The Low SES school Ss (rated as catering for the low SES pupils) showed n Achievement level equal to that of the High SES Ss and higher than that of the Middle SES school Ss. The V-shaped curves, in some cases clear, in other cases a little erratic, revealed the depressing trend in the n Ach of the middle categories of school SES, and of social class based on fathers' EL and OG. The finding therefore appeared definite in showing the Low SES subjects to possess higher n Achievement level as compared to the Middle SES subjects.

The Low SES Ss make an interesting comparison with the High SES subjects. The Low SES schools showed an n Achievement level as high as that shown by the High SES schools. Occupationally, boys of 'skilled worker' fathers showed a higher n Achievement level than those of fathers doing professional work. (The latter category included high Government officers, senior engineers, top business men, and similarly highly placed persons). These boys of 'skilled worker' fathers, however, showed a lower n Ach level than boys of fathers doing some semi-professional work. The latter category of fathers included college and secondary teachers, commission and insurance agents, junior government officers, junior engineers and doctors. These persons were all endowed with good education and may be described as 'the struggling elite'. The Ss from this occupational class showed the highest n Achievement level. Within the 'upper' class this group of people can be described as 'lower upper-class', *i.e.*, next to the topmost social class. Within the middle class, these people can be described as 'upper middle class' *i.e.*, higher than the class of clerks. In this respect the present study supported the results of certain studies (*e.g.*, Rosen, 1959; Strodbeck, 1958) showing the middle-class or white-collar groups as possessing higher n Achievement level than the working class or the blue collar class.

The results discussed above really raise the question: Who constitutes the middle class in India? While this is not the place for any elaborate discussion, suffice it to point out that social class, categorized as High, Middle and Low, may not be a good indicator. The fathers' occupation may be a better indicator of social class. Accordingly, the Ss from the upper middle class (semi-professional occupations) were the highest on n Achievement and those from the working class (skilled and unskilled workers) the next highest. The boys from the upper class and the

lower middle class (clerical occupations) took lower positions. McClelland (1961, p. 379) reported somewhat similar results for his Japanese subjects which hinted at a higher n Achievement level in working-class subjects, next only to that of the Upper middle-class subjects.

The results on n Achievement and social class, in the present study, appeared in some respects to be different from the results of similar studies elsewhere, particularly in the U.S.A. There were no data in the present investigation that could throw light on the factors responsible for the different results. The results would have to be tested in similar replicative studies elsewhere in the country. Further research with certain 'intrinsic' factors, mentioned below, may prove useful in this regard.

The intrinsic factors

The research on 'intrinsic' determination of n Achievement has concentrated on the family. Winterbottom (1958) found mothers of sons with high n Achievement inclined to expect and promote 'self-reliant mastery' at earlier ages than mothers of sons with low n Achievement. The mothers of sons with high n Achievement put fewer restrictions on their sons than the mothers of sons with low n Achievement. The former tended to provide self-reliance training in their sons earlier than imposition of restrictions; the latter imposed more restrictions and did so before they started any independence-training in their sons. In the latter case, the sons remain more dependent on adults, both for achievement help and restricted behaviour, for a longer period of time. McClelland (1955), and Rosen (1959) found middle-class groups (in the U.S.A.) significantly more likely to exhibit attitudes that were more encouraging of early independent accomplishment, than the working class groups. Bronfenbrenner's (1958) and Feld's (1960) reviews point out that the child-training attitudes of the middle-class parents are characterized by higher expectations for independence and achievement.

The process of socialization of the child and the child-learning practices employed for socialization, seem to be the key to the development of achievement motivation. The family and the interaction of families are obviously important factors in the process. The absence of differences in the n Achievement of High SES and Low SES schools point out the family and some non-school agencies as the source of the difference in n Achievement levels. The lower SES or the working-class Ss have shown n Achievement higher than the lower middle-class Ss. Do the working-class parents in India (father and/or mother) tend to encourage

early independence-training in their sons? Do they grant more autonomy and impose fewer restrictions on their sons than the lower middle-class or the upper-class parents whose sons have shown lower *n* Achievement? Do fathers with 'Low' education tend to encourage more and early self-reliance in their sons than fathers with secondary education? Or, are there any other attitudes and values which differentiate the parents of boys with high *n* Ach from the parents of 'Lows'? The present investigation was designed only to raise such questions. Further systematically designed studies alone can provide the answers.

Need Achievement And School Performance

ONE of the major objectives of the present investigation was to find out the relationship between the achievement motive and school performance. As stated in Chapter 1, the intention was to study the relationship of *n* Achievement with both the academic performance and the performance in co-curricular activities. For the latter, the teachers were requested to check a proforma indicating the number and name of activities in which pupils generally participated. The information thus received revealed that over 75 per cent of the Ss were not taking part in co-curricular activities. In fact, most schools lacked such facilities. The study therefore was confined to the academic performance.

The information on *n* Achievement was collected in February-March, 1965. Following this, the Ss took their regular annual examination in April 1965. They came from 32 higher secondary schools of Delhi, each one of which administered its own examination. The total marks obtained by the Ss at the annual examination as well as the marks in Hindi, English, mathematics, science-group subjects (combined) and non-science group subjects (combined) were collected from the respective schools. The science group of subjects includes physics, chemistry and mathematics or biology and the non-science group includes optional subjects other than science—subjects like commerce, economics and history. The marks thus obtained were converted into percentages.

As the marks were derived from different school examinations, they were not directly comparable. All the schools, however, were affiliated to the same Board of Secondary Education. They followed the same curriculum and the same system of examination as prescribed by the Board. Moreover, the schools came from different socio-economic and achieving states. They were in good number, 32, from all parts of Delhi. It was therefore assumed that though the marks derived from different tests, were they would be good and stable indicators of school performance, when they were combined and averaged. The marks, thus combined and averaged, were used in certain analyses. Certain other analyses were done school-wise: for a group of ten schools, found on the Bartlett's test to be homogeneous and for small groups of Ss drawn at random from the larger sample.

Correlation of n Ach with marks in the school subjects

Table 4.1 records correlations of n Ach scores with marks in the various school subjects for the combined sample. The correlations ranged between .085 and .179. All the correlations were significant. The n Ach scores showed a highly significant positive relationship with marks in English and mathematics, and with the total marks ($P < .005$); a good positive relationship with marks in science subjects ($P < .01$) and with marks in Hindi and non-science optional subjects ($P < .05$). However, the weak correlations of n Achievement with marks in Hindi and in non-science optional subjects draw attention. The n Achievement also showed positive correlation with intelligence ($r = .143$; $P < .01$).

Academic achievement and n Ach characteristics

Does the performance show a different relationship with the n Ach characteristics or sub-categories? Table 4.2 records correlations of Achievement Imagery (AI) and ten sub-categories with marks in the various school subjects. It is seen that the total n Ach score tended to show higher correlations with academic performance than the sub-categories in most of the cases. Within the sub-categories, Need (N), Instrumental Activity (I) and Achievement Thema (Ach Th) seemed to show higher correlations, all positive and highly significant, than other sub-categories. It was interesting to note that out of 82 correlations only two were negative of which one, between negative affect (G—) and performance in non-science optional subjects, was significant ($P < .05$).

 n Achievement and performance in the different schools

Correlations were computed for only such schools which had N of 20 or more. Twenty-six schools provided these results, presented in Table 4.3. The table reveals certain interesting results:

1. The negative correlations were very low and not significant.
2. The Low AS schools with Middle and Low SES showed no significant relationship.
3. The significant positive correlations, all shown by High AS schools, ranged between .27 and .50.
4. The verbal intelligence test scores similarly showed low positive correlations with school performance.

The Low AS schools showed weak positive correlations, some not significant, ranging between .16 and .44. The High AS schools showed somewhat stronger correlations, ranging between .08 and .50. The

highest correlation of intelligence with school performance was .50. Coincidentally, the highest correlation shown by *n* Achievement with school performance was also .50. It should be recalled here that *n* Achievement, as seen in Table 4.1, showed a much more significant (although low) relationship with the combined total marks (combined and averaged over 32 schools) ($r = .179$; $P < .005$). The academic performance as expressed in the combined total school marks showed weak positive relationship between *n* Achievement and school marks (chi-square = 3.34; $df = 1$; $P < .10$). The over-all results indicated a definite positive tendency in the direction of prediction.

TABLE 4.1

n ACHIEVEMENT AND SCHOOL PERFORMANCE : INTERCORRELATION MATRIX
(PRODUCT-MOMENT)

Variables	1	2	3	4	5	6	7	8
1. <i>n</i> Ach								
2. AMI (total) ^a	175 ^c *(973)							
3. Intelligence	143 ^c (974)	068 ^b (972)						
4. Total marks	179 ^c (894)	109 ^c (893)	328 ^c (893)					
5. Marks in English	171 ^c (895)	114 ^a (894)	337 ^c (894)	660 ^a (894)				
6. Marks in Hindi	097 ^b (553)	003 (552)	173 ^a (552)	536 ^a (552)	489 ^c (553)			
7. Marks in mathematics	118 ^c (844)	067 ^b (844)	204 ^a (843)	682 ^c (843)	589 ^c (844)	470 ^c (502)		
8. Marks in science-group subjects	134 ^d (343)	093 (342)	307 ^a (343)	815 ^b (343)	588 ^c (343)	NA	590 ^c (340)	
9. Marks in non-science group subjects	085 ^b (562)	005 (561)	086 (561)	699 ^c (562)	482 ^c (562)	472 ^c (552)	534 ^a (511)	NA

^a Results on this instrument are reported in Chapter 6.

^b Significant at .05 level

^c Significant at .005 level; ^d significant at .01 level

* Figures in brackets show N in each case

NA = Not available

TABLE 4.2

CORRELATION MATRIX OF ACADEMIC PERFORMANCE AND 11 ACHIEVEMENT VARIABLES

<i>School Performance Variables</i>	<i>N</i>	<i>AI</i>	<i>N</i>	<i>I</i>	<i>Ga+</i>	<i>Ga-</i>	<i>Bp</i>	<i>Bw</i>	<i>H</i>	<i>G+</i>	<i>G-</i>	<i>Ach Th</i>
Total marks	894	.107 ^b	.168 ^c	.176 ^c	.057 ^a	.021	.068 ^a	.054 ^a	.039	.101 ^b	.032	.135
Marks in English	895	.119 ^b	.188 ^c	.181 ^c	.022	.039	.062 ^a	.046	.041	.029	.046	.139
Marks in Hindi	553	.031	.090 ^a	.118 ^a	.049	.082 ^a	.081 ^a	.073	.028	.065	-.057	.128
Marks in mathematics	344	.068 ^a	.125 ^c	.127 ^b	.040	.018	.050	.071 ^a	.002	.040	.015	.092
Marks in science subjects	343	.053	.144 ^b	.104 ^a	.055	.012	.053	.016	.011	.048	.102 ^a	.080
Marks in non-science subjects	562	.036	.061	.085 ^a	.037	.035	.072	.082 ^a	.045	.033	-.074 ^a	.068

^a Significant at .05 level^b Significant at .01 level^c Significant at .001 level

TABLE 4.3

PRODUCT-MOMENT CORRELATIONS OF ACADEMIC ACHIEVEMENT WITH
n ACHIEVEMENT AND INTELLIGENCE BY SCHOOL ACHIEVING STATUS
 AND SCHOOL SOCIO-ECONOMIC STATUS

	School Code No.	N	<i>n</i> Ach/ Academic Performance	Intelligence/ Academic Performance
High SES/High AS	04	48	.27*	.12
	07	39	.01	.50**
	09	30	.50**	.40*
	10	38	-.13	.08
	12	33	.19	.43**
Over-all for HSES		188	.06	
Middle SES/Low AS	01	36	.19	.32*
	03	38	-.04	.30*
	06	30	.13	-.05
	11	29	-.03	.35*
	13	41	.42**	.34*
	15	33	.09	.31*
	16	44	.47**	.43**
	19	50	.19	.31**
	05	35	.22	.18
Middle SES/Low AS	14	34	.06	.27*
	17	34	-.04	.35*
	18	30	-.01	.37*
	20	35	-.01	.16
	21	27	.21	.39*
	23	27	.15	-.17
Low SES/Low AS	24	25	.02	.44**
	26	23	.18	.26
	29	23	.08	-.12
	30	42	.17	.23
Over-all for LSES		179 ^a	.23	

* Significant at .05 level

** Significant at .01 level

^a Includes schools with less than 20 boys, for which individual correlations were not computed.

Partial correlations

n Achievement continued to show low but significant correlation with total school marks (partial $r = .26$; $P < .05$) as well as with marks in English (partial $r = .29$; $P < .025$) when differences in intelligence scores were controlled. The *n* Achievement scores showed higher correlation with school performance ($r = .27$; $P < .05$) than with

intelligence ($r = .20$; $P = NS$). The n Achievement also showed greater correlation with total marks, in this particular school, than intelligence scores ($r = .12$; NS). While the value of n Achievement scores in predicting school performance was found to be low, or at best moderate, the partial correlations recorded in Table 4.4 suggested an encouraging trend towards the direction of prediction.

TABLE 4.4

ORDINARY (PRODUCT-MOMENT) AND PARTIAL CORRELATIONS
BETWEEN n ACHIEVEMENT, INTELLIGENCE AND SCHOOL
PERFORMANCE

Variables	N	r	Partial r
n Ach and intelligence	46	.20	
n Ach and total marks ^a	46	.27 ^b	.26 ^b
n Ach and marks in English ^a	46	.31 ^c	.29 ^c

^a Intelligence controlled

^b Significant at .05 level

^c Significant at .025 level

n Achievement and academic achievement by school SES

The Low SES schools, as seen in Table 4.3, which had N of 20 or more showed no relationship between Need for Achievement and academic achievement, whereas some schools with High SES showed significant positive relationship. The combined group of boys studying in Low SES schools showed a positive relationship ($r = .23$; $P < .01$) between n Achievement and school performance, and the boys in High SES schools showed $r = .06$. These erratic results at the outset suggest that other factors in the schools or outside, and/or in persons, might heighten or dampen this relationship. Does the nature of the school, the pupil attends, produce any difference in this regard?

It should be recalled here that the boys in Low SES schools showed a level of n Achievement equal to that of the boys in High SES schools (Table 3.9.). The boys in the latter schools showed a much higher level of verbal intelligence than those in the Low SES schools (chi-square = 54.25; $df = 7$; $P < .001$). School marks were available only for 893 Ss from 32 schools, out of the total number of 995 subjects. The remainder perhaps did not take the annual examination. Out of 893 boys, 179, i.e., 20 per cent came from High SES schools; 533, i.e., 59.7 per cent, came from Middle and 181, i.e., 20.3 per cent, from Low

SES schools. As mentioned above, the marks from different schools were pooled together in one distribution and combined medians and other necessary measures were found out. About 27.4 per cent of the boys in High SES schools showed scores above the combined (total marks) median. About the same proportion, i.e., 27.6 per cent of the Low SES school boys were placed above the median total marks. There was, therefore, no difference in the total school performance of Class IX boys studying in Low SES schools and of those studying in High SES schools.

It should be recalled that all Low SES schools had Low AS and all High SES schools had High AS, which indicated that the latter showed a definitely higher academic achievement at the 1963 Higher Secondary School Examination of the Board of Secondary Education. How can this discrepancy be explained? The present Class IX boys from Low SES and High SES schools were found comparable on the total marks median pooled from 32 different schools. Otherwise it could have been said that the standard of marking differed from school to school and that the High performers in Low SES schools were really not comparable with the High performers in the High SES schools. The higher secondary schools' results, and common experience and knowledge, suggest that the Low SES Class IX boys, although found comparable with their counterpart in the High SES schools, are not likely to show similar results at the Boards' examinations two years later. For the present, the Low SES school Class IX boys, with lower intelligence and fewer educational facilities but with equivalent *n* Achievement level, seemed to show a level of school performance equal to that of the High SES school boys. Did their Need for achievement help these boys to attain this equal school performance?

Taken separately, the High SES school boys showed significant relationship neither between *n* Achievement and performance (chi-square = 0.02; *df* = 1; NS) nor between *n* Ach and Intelligence (chi-square = 0.02; *df* = 1; NS) whereas the Low SES school boys showed a definite relationship between their performance and *n* Achievement (chi-square = 7.64; *df* = 1; $P < .01$). Among these boys those with high *n* Ach showed higher school performance. They also showed a significant relationship between *n* Ach and intelligence (chi-square = 5.33; *df* = 1; $P < .05$). The High SES school boys might have shown higher performance because of their intelligence which was significantly related to performance ($P < .0001$). They might have other motives for their performance. The Low SES school boys could have attained a similar performance in school examinations due to their achievement motivation, in spite of other difficulties.

The High SES schools represent 'better' educational facilities and presumably provide 'better' educational environment than the Low SES schools. The former are much more expensive and are normally beyond the means of any but the top ten per cent of the people, though some of the middle-class parents do make sacrifices to send their children to these schools. There is thus a segregation in education itself—the minority of private, fee-charging, better schools meeting the needs of the upper classes, and the vast bulk of free, publicly maintained but poor schools being utilized by the rest (Education Commission Report, 1966; p. 10). This privileged educational environment might be releasing powerful motives, other than the Need for Achievement, in High SES school boys. These other motives, *e.g.*, the need for maintaining status or seeking social approval might be prompting them towards a higher level of school performance. The need for social approval was found to be related to the apparent difficulty value of a task in the same way as the incentive value of success is related to apparent difficulty (Atkinson and O'Connor, 1962).

Did the boys, studying in the bulk of free, publicly maintained but poor schools (Low SES) show higher incentive value of success, *i.e.*, Achievement? Between two groups of persons, given an equally strong motivational disposition to succeed (*M*s or *n* Achievement), Atkinson's model (1958) predicts a higher tendency to approach achievement in *S*s who possesses a higher incentive value of that task or achievement (in this case, school performance). The Achievement Motivation Inventory (AMI), results on which are reported in greater detail in Chapter 6, promises to provide measures of achievement values (described here as AR [*AMI*]). The Low SES school boys showed much higher AI (AMI) score (*i.e.*, Achievement, value score) than boys from the High SES schools ($\chi^2 = 22.05$; $df = 4$; $P < .001$); on the other hand, the latter showed a much higher score on UR and TR ([*AMI*] task-related values) than the former ($\chi^2 = 36.98$; $df = 4$; $P < .0001$). The results, therefore, tended to support the view that the Low SES school boys on the whole had higher incentive value of achievement in school than boys in the High SES schools, which might have tended them for 'good' school performance. The High SES school boys also showed equally 'good' performance perhaps because of other reasons like higher verbal intelligence, stronger task-related values (along with comparatively higher *n* Achievement) and higher need for social approval. The results highlight the fact that school performance, even when measured correctly, is a function of several factors. The Need for Achievement may be positively related to school performance under some conditions and may now show signifi-

cant relationship under some other conditions. This is further discussed in Chapter 6.

The school's socio-economic status seemed to show certain interesting variations in the relationship between *n* Achievement and school performance. Do the components of pupils' SES show similar results?

n Achievement and school performance by pupils' social class

The fathers' educational level (EL) and the occupational group (OG) were found to be related to the boys' *n* Achievement. The boys of fathers with High education showed higher *n* Achievement than those of fathers with Low education, who however showed higher *n* Achievement than boys of fathers with secondary education (Table 3.18). Boys of fathers doing some semi-professional work showed the highest *n* Achievement, with the boys from the skilled and unskilled workers' group showing the next highest. Boys from both these groups showed higher *n* Ach than those from the professional and the clerical—shopkeepers groups (Table 3.19). Do the boys show similar differences in school performance as in their *n* Achievement?

The pupils' SES showed no difference in their *n* Achievement (Table 3.11) whereas it showed significant relationship with school performance. About 43.5 per cent Ss from High SES schools showed performance above the combined median as against 26.3 per cent from Middle SES and 21.9 per cent from the Low SES schools (chi-square = 27.56; $df = 15$; $P < .05$). More boys (about 36 per cent) of fathers with High EL showed medium or high academic performance than boys (21 per cent) of fathers with secondary education and boys (30 per cent) of fathers with Low EL (chi-square = 60.33; $P < .05$). The fathers' EL of about 13 per cent boys was not known. The school performance, therefore, showed a trend similar to that shown by *n* Achievement by fathers' EL. The boys of fathers in the professional group showed the highest performance whereas their *n* Achievement level was nearly the lowest. About 38 per cent of these boys showed medium or high performance as against 31 per cent from the semi-professional, 21.5 per cent from the clerical, 20 per cent from skilled workers, 24 per cent from the semi-skilled and about 12 per cent from the unskilled occupational groups (chi-square = 57.09; $df = 24$; $P < .01$). The results therefore suggested that the social class variables, except the fathers' EL, were not related to school performance in the same direction as these were related to *n* Achievement. The results once again highlighted the fact that although *n* Ach showed positive relationship with school performance there were other factors which could boost or reduce it. Owing to these factors, boys with higher mean *n* Achievement, as in the case of

Low SES Ss or boys of father in the skilled occupational group, failed to attain high school performance whereas boys of fathers in the professional group with Low average n Achievement managed to attain a higher degree of school performance.

Within the same social class, will the boys with high n Achievement show higher school performance than those with Low n Achievement? Tables 4.5 and 4.6 provide some interesting data in this regard. Within occupational groups, boys with high n Ach and those with low n Ach (split at the median) showed no significant differences in their school performance, as seen in Table 4.5, although Ss with high n Achievement tended to show higher performance. Almost all the skilled, semi-skilled and unskilled workers belonged to the Low EL group, and most of the professional and semi-professional people to the High EL group. The data are presented in a slightly different way, by EL, in Table 4.6. Within the EL groups the upper 25 per cent of the Ss formed the High n Achievement group, the bottom 25 per cent the Low and the middle 50 per cent the Middle n Achievement group. Within the Low EL group, boys with High n Achievement showed higher mean school performance than those with low n Achievement ($t = 2.48$; $P < .01$). The Low EL Ss showed a markedly steeper upward performance for increasing n Achievement, as seen in Figure 4.1, as compared with the

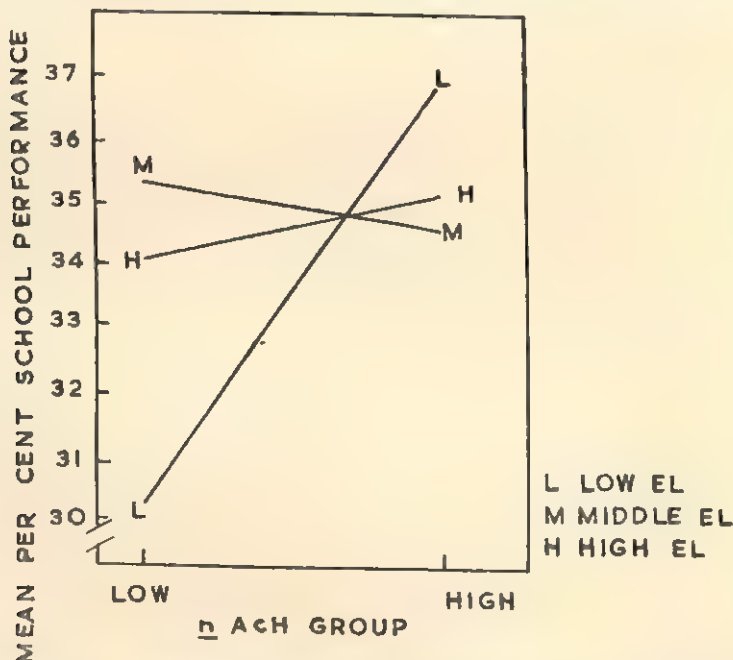


Figure 4.1. Academic Performance by n Ach for Father's Educational Level

Ss in the High and Middle EL groups. The boys with low *n* Achievement in the Middle and High EL groups showed higher school performance than boys in the Low EL groups. It seemed therefore, that boys with high *n* Achievement in the Low EL groups showed the same school performance as that of boys with high *n* Achievement in the Middle and High EL groups. This was not so with the boys with low *n* Ach. The boys with low *n* Ach in the Middle and High EL groups not only showed the same performance as boys with High *n* Ach in their own or other groups, but showed higher performance than those with low *n* Achievement in Low EL group. The results showed that boys of fathers with low education, which may mean poorer educational environment at home, who possessed high *n* Achievement could attain the same level of school performance as boys from the higher EL groups. Their peers with low *n* Achievement, however, could not achieve the same level of performance as other boys also with low *n* Achievement, but in the higher EL groups.

TABLE 4.5

MEDIAN PERFORMANCE BY FATHER'S OCCUPATION AND *n* ACH GROUPS

Occupational Groups	Median on Performance			Chi-square
	Low <i>n</i> Ach	High <i>n</i> Ach	df	
Professional	35.5	40.0	1	0.365 ^b
(42) ^b	(22)	(20)		
Semi-Professional	29.0	30.0	1	0.034
(2)	(14)	(13)		
Clerical	35.1	37.4	1	0.837
(118)	(58)	(58)		
Skilled workers	33.0	35.0	1	0.964
(46)	(21)	(25)		
Semi-skilled workers	34.5	35.0	1	0.031
(23)	(12)	(11)		
Unskilled workers	32.0	34.0	1	0.141
(8)	(4)	(4)		

^a Figures in brackets indicate N in each case

^b No chi-square value was significant

TABLE 4.6

MEAN ACADEMIC PERFORMANCE BY *n* Ach AND FATHERS' EDUCATIONAL LEVEL

EL	<i>n</i> Ach		
	Low	Middle	High
A. Low	30.48 *(24)	31.90 (44)	36.80 (25)
B. Middle	35.44 (18)	31.48 (37)	34.61 (13)
C. High	34.07 (15)	33.15 (41)	35.15 (20)

Groups	<i>t</i>	<i>P</i>
AL and AM	0.92	NS
AL and AH	2.48	.01
AM and AH	2.37	.01
AL and BL	1.84	.05
AL and CL	1.41	.10
AH and BH	0.64	NS
AH and CH	0.52	NS

* Figures in parentheses show N in each case.

L = Low, M = Middle, H = High

A BRIEF INTERPRETATION

What can be the possible reason for the boys with High *n* Achievement in High EL and Middle EL groups not being able to show a higher level of performance at the school examination, than boys with Low *n* Achievement? Which factors help the boys with high *n* Achievement in the Low EL group to attain a higher level of performance than those with low *n* Achievement? The educational environment at home and in the school is one important factor in school achievement. The boys of fathers with Middle EL and, more certainly, those of fathers with High EL can be assumed to enjoy a better educational environment at home than the boys of fathers with Low EL. This factor, therefore, should have helped the boys with high *n* Achievement in the High EL group to attain a higher level of school performance than those with High *n* Achievement in the Low EL group. In fact, the latter (*i.e.*, High *n* Ach boys in Low EL group) seemed to show equal, if not somewhat greater, performance at the school examination than those with High *n* Ach in the High EL group.

The achievement-related situation (such as the school annual examination) arouses two achievement-related motives: n Achievement or the motive to approach success (M_a), and anxiety or the motive to avoid failure (M_{AF}). These are aroused at the same time, but in varying proportions, depending upon the motivational disposition of the individual. It is hypothesized that persons High on n Ach and Low on Anxiety (after Atkinson and Litwin, 1960) show greater performance at competitive tasks than more low on n Ach and High on anxiety. This question is further examined in Chapter 6, where results obtained on the Achievement Motivation Inventory (AMI) are reported.

The High SES and Low SES school boys also showed significantly different trends in the relationship of their n Achievement with performance at the school examination. Within similar occupational groups, n Achievement showed no difference in school achievement. Within the same SES, the schools showed erratic results, some showing positive relationship, and some low negative, and many showing no relationship at all. What factors produce such erratic results as well as certain other definite differences in the trends of relationship? Besides anxiety or the motive to avoid failure (M_{AF}), are there any other motives and/or factors likely to boost or dampen the effect of individual differences in n Achievement on school performance? Some such questions are discussed in Chapter 6.

Need For Achievement And Pupil Schema Of Achievement Demands

SEVERAL studies, for example, those of Coleman (1960), Drews and Teapan (1963), Fraser (1959), McClelland (1953), Ryan (1958), and Tannenbaum (1962) have pointed out that the demands made on the individual by his social environment contribute to the development of his desire to succeed. The parents of high academic achievers were found (Drews and Teapan, 1963) to be less permissive in their treatment of their children than the parents of low achievers. The boys are likely to be moved to action by these demands to the extent they perceive them. More meaningful to individuals is how they construct the outside achievement demands on them. As mentioned in Chapter 1, it was assumed that the boys with high *n* Achievement perceive their peers, teachers and fathers as having high expectations for success at school examinations, co-curricular activities and at the chosen vocations later in life. It was further assumed that the boys who perceive others as having a high expectation of their success at school attain greater success at school examinations.

The Survey of the Achievement Motive in High School Boys was conducted with about 1,000 Class IX boys in 32 higher secondary schools of Delhi. These boys were arranged alphabetically, school-wise. Every fifth boy was then selected from each school list to form a representative sub-sample for the proposed study of pupil schema. Out of 200 boys thus selected, 193 were interviewed individually by a trained interviewer. Forty-three Ss, *i.e.*, 22.28 per cent, came from High SES schools; another 43 from Low SES schools; and 107, *i.e.*, 55.44 per cent, from Middle SES schools.

NATURE OF INTERVIEW VARIABLES AND SCORES

As reported in Chapter 2, an interview schedule was developed and used for the study of pupil schema. The schedule contains 14 items, twelve of which are related to the pupil's perception of others' expectation of him. These items are spelled out, with their codes, in Table 5.1. Each of the twelve items contains two questions, one open-ended and one ladder type. The coding of open-ended responses ranges from 0 to 10. The ladder-like instrument also contains steps corresponding

to these codes 0 to 10. Thus each subject got two scores on each of the twelve items. These responses were added to yield an average score on each item. These average scores were used for the analyses reported below.

TABLE 5.1

PUPIL PERCEPTION OF PEERS', TEACHERS' AND FATHER'S EXPECTATION OF HIS SUCCESS: VARIABLES

<i>Interview Item No.</i>	<i>Items</i>	<i>Code</i>
1.	Perceptions of peers' expectation for success in co-curricular activities	PPESC
2.	Perception of peers' expectation for vocational success	PPEVS
3.	Perception of teachers' expectation for success in co-curricular activities	PTESC
4.	Perception of fathers' expectation for vocational success	PFEVS
5.	Perception of teachers' expectation for school success	PTESS
6.	Perception of fathers' expectation for co-curricular activities	PFESC
7.	Perception of peers' expectation for school success	PPESS
8.	Perception of teachers' expectation for vocational success	PTEVS
9.	Perception of fathers' expectation for school success	PFESS
10.	Self-expectation of success in co-curricular activities	SESC
11.	Self-expectation of vocational success	SEVS
12.	Self-expectation of school success	SESS

Distribution of responses

Table 5.2 summarizes basic data on the distribution of scores on each interview item. Most of the items showed negative skewness with medians and modes approaching the highest point on the scale. Figures 5.1, 5.2 and 5.3 point out an identical pattern of responses to all items. The responses were always massed on the 'high' side of the distribution, suggesting an over-all tendency to perceive 'high' expected success (irrespective of the field of activity and the source of expectation). The pupil schema variables were moderately intercorrelated as seen in Table 5.3. All the correlations were positive and highly significant ($P < .01$). The attempt in the arrangement and the wording of the

interview items was to avoid an artificial response set. The inter-correlations suggested, as was expected, some kind of generality in pupil schema organization.

The study sought to seek answers about the relationship of *n* Achievement and certain specific pupil-schema variables relating to perception of success at school and, later, in vocational life, expected by them, and by their peers, teachers and fathers. It was hypothesized that Ss with high *n* Achievement perceive high expected success.

RESULTS

School, social class and pupil perception

Tables 5.4 and 5.5 show chi-square values between the various pupil schema and several school and socio-economic variables. The school SES, AS and location, and the pupils' SES, their fathers' EL and OG showed no significant relationship with the pupils' perception of the success expected of them.

TABLE 5.2

PUPIL SCHEMA MEAN SCORES
N = 193

<i>Pupil Schema Variables</i>	<i>Mean</i>	<i>Mdn</i>	<i>SD</i>	<i>Skew</i>	<i>Kts</i>
PPESC	8.614	9.500	1.255	-1.391	1.068
PPEVS	8.013	8.500	1.436	-0.944	0.743
PTESC	8.516	9.000	1.396	-1.830	3.917
PFEVS	7.995	8.000	1.474	-1.289	3.618
PTESS	7.997	8.500	1.481	-0.824	-0.168
PFESC	8.448	9.000	1.242	-1.031	0.134
PPESS	7.969	8.500	1.448	-0.684	-0.701
PTEVS	7.907	7.500	1.309	-0.389	-0.439
PFESS	8.202	8.500	1.348	-0.986	0.365
SECS	8.565	9.000	1.264	-1.383	0.956
SEVS	8.101	8.500	1.309	-0.707	-0.095
SESS	8.104	9.000	1.488	-0.794	-0.565

TABLE 5.3

INTERCORRELATIONS MATRIX: PUPILS' PERCEPTIONS OF OTHERS' EXPECTATIONS OF THEM AND THEIR OWN EXPECTATIONS

 $N = 193$

<i>Pupil Schema Variables</i>	<i>No.</i>	1	2	3	4	5	6	7	8	9	10	11	12
PPESC	1												
PFEVS	2	215											
PTESC	3	881	435										
PFEVS	4	264	558	413									
PTESC	5	237	355	410	344								
PFESC	6	334	342	523	448	362							
PPESC	7	110 ^a	316	288	309	665	313						
PTEVS	8	242	447	363	490	301	391	344					
PFESS	9	158	359	344	386	538	411	673	371				
SESC	10	327	235	470	313	298	547	282	258	382			
SEVS	11	154	403	286	365	276	315	368	472	277	282		
SESS	12	171	296	347	310	534	342	698	374	788	296	401	

^aAll correlations, except this one, are significant at or beyond .05 level.

TABLE 5.4

PUPIL SCHEMA AND PUPILS' SOCIAL CLASS

<i>Pupil Schema</i>	<i>Father's EL</i>		<i>Father's OG</i>		<i>SES</i>	
	χ^2*	<i>df</i>	χ^2*	<i>df</i>	χ^2*	<i>df</i>
School Success						
PPESS	52.146	77	29.910	66	16.384	33
PTESS	39.132	84	27.622	72	15.912	36
PFESS	51.132	84	32.467	72	27.038	36
SEES	38.515	77	24.987	66	15.027	33
Vocational success						
PPEVS	30.332	77	22.037	66	17.812	33
PTEVS	45.783	77	38.152	66	21.884	33
PEEVS	38.098	84	33.422	72	09.645	36
SEVS	40.244	77	46.430	66	23.453	33
Success in Co-curricular Activities						
PPESC	31.036	70	23.327	60	11.768	30
PTESC	47.641	91	39.753	78	19.625	39
PFESC	40.070	70	25.623	60	13.784	30
SESC	39.764	70	26.676	60	26.262	30

*None reaches the acceptable level of significance.

It may be recalled here that *n* Achievement levels, as reported in Chapter 3, showed significant relationship with components of social class, namely, the father's educational level (EL) and the occupational group (OG). Hypothetically, the pupil perceptions of expected success (PPES) should have shown a somewhat similar relationship with social-class variables. The absence of any definite relationship between PPES and social class, therefore, suggested an absence of significant relationship between PPES and *n* Achievement. This indication was confirmed by the results recorded in Table 5.6.

*Pupil perception and *n* Achievement*

The major assumptions tested in the study were that Ss with high *n* Achievement perceive higher expectations of success (higher demands on themselves) at school examinations, co-curricular competitions and, later, in vocational life from peers, teachers and fathers. None of these assumptions could be confirmed by the results recorded in Table 5.6. The PPES showed no relationship with *n* Achievement.

TABLE 5.5
PUPIL SCHEMA AND SCHOOL'S SOCIAL CLASS

<i>Pupil Schema</i>	<i>School AS</i>		<i>School Location</i>		<i>School SES</i>	
	χ^2^*	<i>df</i>	χ^2^*	<i>df</i>	χ^2^*	<i>df</i>
School Success						
PPSS	5.047	11	10.260	11	8.636	22
PTSS	7.509	12	4.051	12	9.933	24
PSS	2.631	12	7.612	12	10.029	24
SS	3.381	11	4.908	11	9.587	22
Vocational Success						
PPEVS	7.934	11	4.172	11	9.791	22
PTEVS	7.659	11	2.695	11	11.492	22
PFEVS	9.871	12	2.392	12	16.080	24
SEVS	3.831	11	2.945	11	16.384	22
Success in Cocurricular Activities						
PPESC	5.800	10	2.462	10	8.591	20
PTESC	6.467	13	10.551	13	11.552	26
PFESC	0.989	10	1.165	10	2.847	20
SESC	7.636	10	2.931	10	9.180	20

*None reaches the acceptable level of significance

TABLE 5.6
PUPIL SCHEMA AND *n* ACHIEVEMENT

<i>Pupil Perception of Expected Success (PPES)</i>	<i>df</i>	χ^2^a
PPESC*	4	1.0
PPEVS	9	1.3
PTESC	4	3.9
PFEVS	9	8.3
PFESC	4	0.9
PPSS	9	1.0
PTEVS	9	5.0
PSS	9	2.0
SS	4	1.5
SEVS	9	7.3
SESS	9	2.1

* For an explanation of these terms, see Table 5.1

^a All values NS.

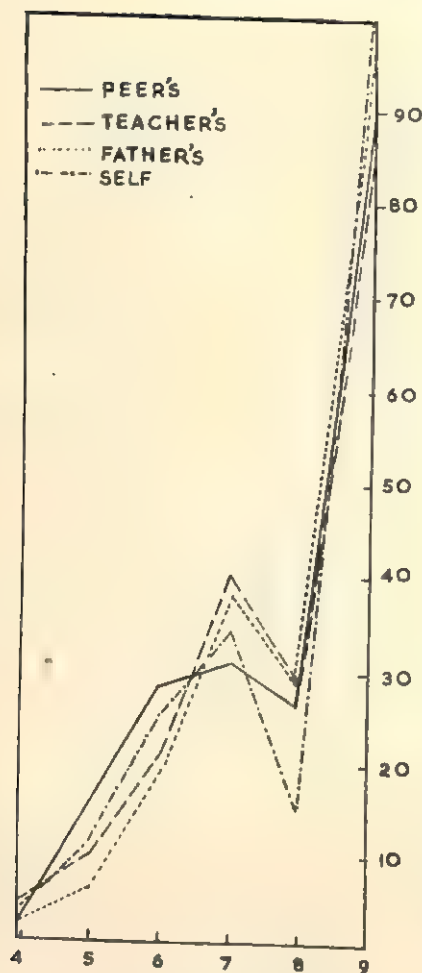


Fig. 5.1. Pupils' perception of expected school success

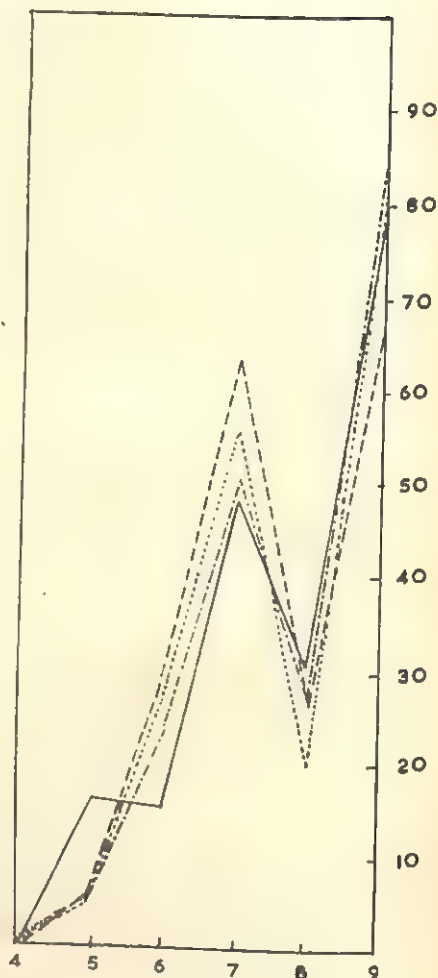


Fig. 5.2. Pupils' perception of expected vocational success

The uniform pattern in the distribution of responses to PPES items, as seen in Table 5.2 and Figures 5.1, 5.2 and 5.3, the high positive inter-correlations among them recorded in Table 5.3 and their relationships with n Ach. suggested a unitary tendency in perception of expected success irrespective of the source of expectation and/or the field of activity. The scores on PPESS, PTESS and PFESS were averaged to obtain a composite score on pupil perception of expected school success (PESS). Similarly, the rest of the score were averaged to obtain composite scores on PESC and PEVS. All the nine scores were then averaged to yield one composite score on perception of success in general (PEGS). The

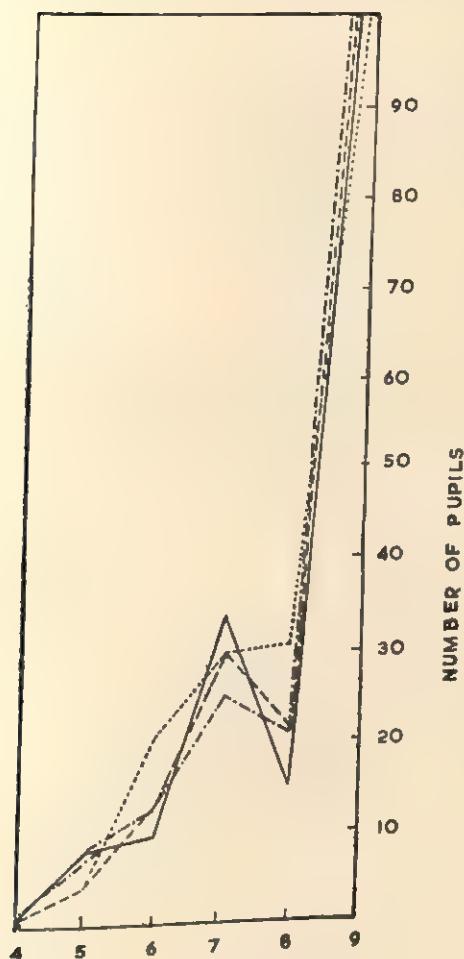


Fig. 5.3. Pupils' perception of expected success in co-curricular activities

results recorded in Table 5.7 show no significant relationship of n Achievement with composite tendencies either. The relationship of n Achievement with the perception of expected success in general (PEGS) seemed to approach some significance ($\chi^2 = 2.54$; $df = 1$; $P < .15$). The *post hoc* assumptions that Ss with high n Achievement perceive higher demands for success at school and projected vocations failed to be confirmed. Subjects with high n Achievement however seemed to perceive a somewhat higher demand for success as such, although it needed further confirmation.

n Achievement and perception of fathers' expectations

Although none of the assumptions regarding the relationship between *n* Achievement and pupil schema could be retained, the correlations recorded in Table 5.8 reveal interesting information. Almost all pupil-schema variables showed negative correlations with *n* Ach; of these two were significant. The results seemed to suggest an inverse relationship between the pupil's perception of the father's expectations,

TABLE 5.7

n ACHIEVEMENT AND PERCEPTION OF
EXPECTED SUCCESS AT SCHOOL AND
VOCATIONS

<i>Pupil Schema</i>	<i>df</i>	χ^2
1. PESC	1	0.31
2. PEVS	1	1.17
3. PESS	1	0.024
4. PEGS	1	2.54*

* Significant at .15 level

TABLE 5.8

CORRELATIONS (PRODUCT-MOMENT) OF
n ACHIEVEMENT WITH PUPIL SCHEMA
VARIABLES
N = 193

<i>Pupil Schema</i>	<i>n Achievement</i>
PPESC	-.028
PPEVS	-.004
PTESC	.010
PFEVS	-.185**
PTESS	-.019
PFESC	-.122*
PPESS	-.055
PTEVS	-.086
PFESS	-.004
SESC	-.007
SEVS	-.078
SESS	-.043

* Significant at .05 level, two-tailed test

** Significant at .01 level, two-tailed test

expected success and *n* Achievement. This was significantly revealed in the case of the perception of the father's expectation of vocational success (PFEVS) and the father's expectation of success at co-curricular competitions (PFESC). The fathers' expectations (as perceived by pupils) appeared to have some special meaning for the development of achievement motivation in their children. Do children of fathers perceived as high-demanding show lower *n* Achievement levels? A partial answer was available for the results recorded in Table 5.9.

The perceptions were grouped into Low, Moderate and High categories corresponding to the lower, middle and the upper quartiles of distribution of responses in each case. Subjects perceiving Low fathers' expectation for vocational success showed significantly higher mean *n* Achievement than those perceiving High expectations ($t = 2.39$; $P < .02$). The *n* Achievement showed no difference for different levels of perception of expectation of success at co-curricular competitions.

The perception of the father's expectation is related to the perception of the total home environment, and more certainly to the father's attitudes toward child-rearing. Several investigations (Bradburn, 1963; Feld, 1960; Rosen, 1959; Strodtbeck, 1958) have shown that the boys of authoritarian fathers show Lower *n* Ach than those of non-authoritarian

TABLE 5.9

MEAN *n* ACHIEVEMENT SCORES OF Ss WITH HIGH, MODERATE AND LOW PERCEPTION OF FATHERS' EXPECTATIONS

Pupil Schema	(1) LOW*		(2) MODERATE		(3) HIGH	
	M	N	M	N	M	N
PFEVS	7.16	48	6.73	90	7.75	56
PFESC	8.11	56	6.26	56	6.72	82
PFEVS	9.11	53	5.95	82	6.6	58
			<i>t</i>	<i>p</i> **		
PFESC	1 and 2		1.54	NS		
	1 and 3		1.39	NS		
PFEVS	1 and 3		2.39	.02		
	1 and 2		3.00	.02		

* Low, Moderate and High groups correspond to the Lower, Middle and Upper quartiles respectively of the concerned pupil schemata.

** All two-tailed tests

fathers. Were (or are) those fathers who were perceived to have High expectations in the present investigation, authoritarian in their attitudes towards their children? Or are they perceived as authoritarian by their children when in fact they are not? Winterbottom (1958) found mothers of boys with High n Achievement to be more demanding of achievement from their boys. She also found that such mothers start early independence-training in their children. The present investigation provided no information on mothers' or on fathers' attitudes. The results do, however, tend to suggest some child-rearing variables, such as fathers' attitudes, associated with the boys perception of their expectation regarding boys' success in vocational life or at some co-curricular competition. The results also tend to suggest that holding High expectations of or aspiration for some person is one thing and that person's perceiving the expectations as high is another. The present data failed to confirm the hypotheses that boys with High n Achievement perceive others to have high expectations of them. Some studies have pointed out the association of High n Achievement with moderate aspirations (Atkinson, 1964) and with moderate risk-taking (McClelland, 1958). Would Ss with High n Achievement tend to perceive others to have moderate expectations from them? The chi-square values recorded in Table 5.6 suggest that the two, *i.e.*, n Achievement and the perceived expectations were not related. They seemed to be related inversely, as in the case of fathers' expectations, as seen in Table 5.9. Figures 5.4, 5.5 and 5.6 show mean n Achievement of Low—, Moderate—and High-perception group Ss for the expected success in school work, vocation and co-curricular activities. The mean n Ach differences for the various groups, except for PFESC and PFEVS, were not significant. The curves are V-shaped, indicating lower mean n Ach for the Moderate-perception, group, except in the case of PTEVS, PTESC and self-expectations.

The self-expected success at school and at some future vocation has better approximation to expected academic success and vocational aspiration. It was therefore interesting to find moderate-aspiration Ss showing somewhat higher, although not significant, mean n Achievement, as revealed by curves for self-expectations in Figures 5.4, 5.5 and 5.6.

Pupil schema and academic performance

It was assumed that Ss with perception of High expectations of school success would show greater school performance. This assumption seemed to receive some support from the results recorded in Table 5.10. All the four pupil-schema variables relating to expected school success

showed low but significantly positive relationship⁵⁷ with total school performance (total marks).

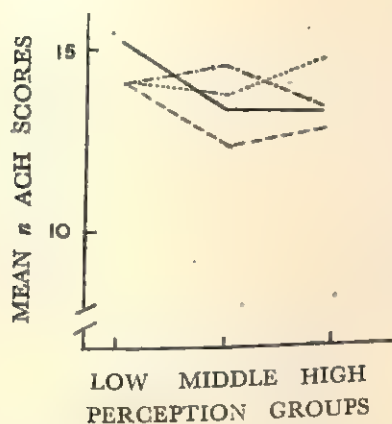


Fig. 5.4. Perception of school success

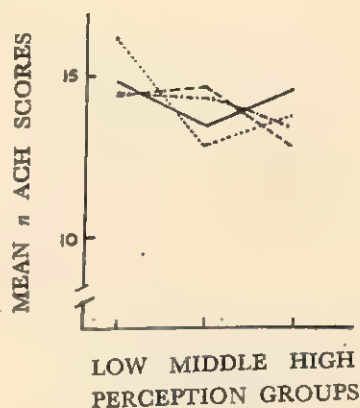


Fig. 5.5. Perception of vocational success

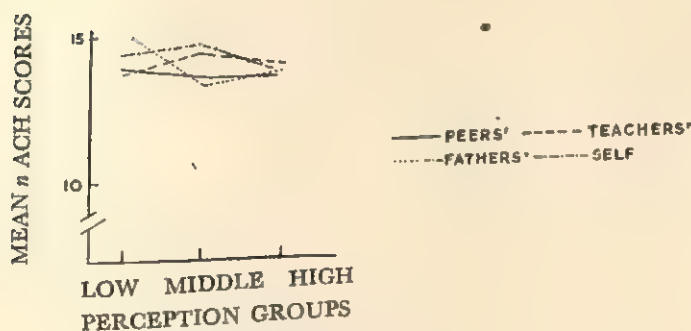


Fig. 5.6. Perception of success in co-curricular activities

It should be recalled here that the school marks used for analysis were obtained from the annual examinations held after the interview data on pupil schema were collected. The perceived expected school success, as revealed in interview responses, appeared to possess significant prediction-value for school performance. Subjects perceiving higher school success demands on them from peers, teachers and fathers seemed to have shown greater academic performance.

TABLE 5.10

CORRELATIONS OF PERCEIVED EXPECTED
SCHOOL SUCCESS AND ACTUAL SUCCESS

<i>Pupil Schema</i>	<i>r</i>	<i>p</i>
PPESS	.148	.05
PTESS	.146	.05
PFESS	.221	.01
SESS	.236	.01

 $N = 177$

PERCEPTION OF ACHIEVEMENT QUALITIES

Measure of achievement qualities

One of the earlier drafts of the interview schedule contained three items, one each on qualities of teachers, fathers and friends. Each respondent narrated qualities he perceived in his best friends, his teacher and his father. Twenty-two Ss narrated 90 qualities in peers, 71 in teachers and 70 in fathers. These were edited for overlap and repetitions, and an inventory of the first ten qualities perceived in each case, was prepared. This list was inspected and used for developing an Inventory of Qualities. The Inventory contains three sections, one each for peers, fathers and teachers. Each section contains five items each of which shows a pair of qualities, apparently comparable on social desirability. The Inventory therefore contains fifteen pairs of qualities, five each for peers, teachers and fathers. One quality in each pair is an achievement-related quality (AI—following the criteria used for coding TAT stories). The respondents are required to check one quality in each pair. The scores range from 0 to 5 each for peers, teachers and fathers.

The fifteen items in the Inventory showed satisfactory discrimination in a try-out carried out before it was used in the survey. The discrimination values, found with the upper and bottom 27 per cent, ranged between .30 to .86. The Inventory given in Appendix 6, was used in the survey along with the other tests.

Interrelationship among the perceived qualities

The rate of achievement qualities perceived by the Ss in their peers, teachers and fathers showed positive intercorrelations as seen in Table 5.11. The correlations obtained were significant at .0005 level.

TABLE 5.11

INTERCORRELATION MATRIX: PERCEIVED QUALITIES

 $N = 968$

	No.	1	2	3
Peers	1	—	—	—
Teachers	2	.168	—	—
Fathers	3	.208	.142	—

Note:—All are significant at .0005 level.

Perceived achievement qualities by school and social class

The pupils' SES and their fathers' EL and occupational group showed us a difference in perception of achievement-related qualities. The boys' perception of qualities in peers and fathers showed no difference for the school SES, AS and location. The Low SES boys however perceived a greater number of achievement qualities in their teachers than were perceived by the boys in Middle and High SES school boys (chi-square = 20.59; $df = 84$; $P < .01$). Similarly, boys in Low AS schools and those in rural schools perceived a greater number of achievement-related qualities in teachers than did boys in High AS and urban schools; (chi-square = 13.29; $df = 4$; $P < .01$) and (chi-square = 17.02; $df = 4$; $P < .01$) respectively.

Perceived achievement qualities and pupil schema of achievement demands

Table 5.12 shows correlations between the scores on perceived achievement qualities in peer, teacher and father and the pupil schema of achievement demands (expected success) from the same sources. No results were significant.

Perceived achievement-related qualities and n Achievement

It was hypothesized that boys with high n Achievement perceive achievement-related qualities in their peers, teachers and fathers. The correlations, recorded in Table 5.13, showed no relationship between n Achievement and the number of achievement-related qualities perceived by the Ss in their peers and teachers. The n Achievement showed positive relationship with the rate of achievement-related qualities perceived in fathers ($r = .133$; $P < .005$). The results, presented in Table 5.13, revealed positive correlations of the latter with several n Achievement characteristics,

TABLE 5.12

CORRELATIONS OF PUPILS' SCHEMA WITH PERCEIVED
ACHIEVEMENT QUALITIES

<i>Pupil Schema</i>	<i>Perceived Achievement-Related Qualities in</i>		
	<i>Peers N = 191</i>	<i>Teachers N = 191</i>	<i>Fathers N = 191</i>
PPESS	.016	.047	.037
PTESS	-.034	.100	.044
PFESS	.012	.070	-.046
SESS	.049	.100	-.013
PPEVS	.003	-.066	.021
PTEVS	.049	-.042	.000
PFEVS	.031	.070	.036
SEVS	.035	-.019	.040
PPESC	-.032	.035	.026
PTESC	.003	-.059	.067
PFESC	.014	.061	.100
SESC	-.029	.053	.102

TABLE 5.13

CORRELATIONS BETWEEN ACHIEVEMENT QUALITIES
PERCEIVED AND *n* ACHIEVEMENT

<i>Achievement Qualities Perceived by Pupils in</i>			
	<i>Peers N = 968</i>	<i>Teachers N = 969</i>	<i>Fathers N = 969</i>
<i>n</i> Ach	.019	-.050	.133 ^c
UI	-.087 ^c	-.015	-.096 ^c
TI	.030	.051	-.072 ^a
AI	.045	-.009	.130 ^c
N	.003	-.045	.103 ^c
I	.018	-.012	.103 ^c
Ga+	.044	.005	.076 ^b
Ga-	.027	.016	.036
Bp	.018	-.027	.080 ^b
Bw	-.043	-.006	.031
Nup	-.028	.009	.055 ^a
G+	.035	.023	.026
G-	.042	.002	-.025
Ach Th	.019	-.016	.114 ^c

^a Significant at .05 level^b Significant at .01 level^c Significant at .005 level

The rate of perceived qualities and school performance

The rate of achievement qualities perceived in the fathers showed positive correlation with the boys' total performance at the school annual examination. The results, recorded in Table 5.14, showed no relationship between the rate of qualities perceived in peers and teachers and school performance.

TABLE 5.14

CORRELATIONS OF RATE OF PERCEIVED QUALITIES WITH SCHOOL PERFORMANCE

$N=837$

	Qualities Perceived in		
	Peers	Teachers	Fathers
r with Performance at Annual Examination ($P < .0005$)	-.013	-.045	.148

SUMMARY AND CONCLUSIONS

It was hypothesized that boys with high n Achievement perceive high achievement demands (high expected success) on them by their peers, teachers and fathers. It was further hypothesized that boys with high n Achievement perceive a greater number of achievement qualities in peers, teachers and fathers. Data on pupil schema of achievement demands were collected through individual interviews with the help of an interview schedule. The data on achievement qualities were collected through a group check-list. All hypotheses regarding the relationship of pupil schema and n Achievement were rejected; on the contrary n Achievement was found to be negatively related to the perceptions of fathers' expected vocational success. The pupil schema of fathers', teachers' and peers' expected school success were found to be related to actual performance at school examination. Self-expectancy of school success was also positively related to the actual school performance. The social and school characteristics made no difference in the pupil schema of achievement demands. The boys studying in Low SES and Low AS schools perceived a greater number of achievement qualities in their teachers.

The hypotheses regarding the relationship of n Achievement and the perception of achievement qualities in peers and teachers were also rejected. The boys with high n Achievement perceived a greater number of achievement-related qualities in their fathers than did the boys Low in n Achievement, thus confirming the hypothesis. This finding assumed greater importance in view of the negative correlation between n Achievement and the pupil schema of fathers' expected success. The pupil's perception of achievement-related qualities in the father and the pupil's perception of the father's achievement-demands on him appear as two different things.

The results raised questions concerning the concept of pupil schema, particularly about the perception of the fathers' achievement-demands. Are fathers who are perceived by sons as high-demanding (high expectation) really high-demanding? Do high-demanding fathers produce anxiety in their children, and is such anxiety aroused when children are asked to imagine and recall their fathers' expectations? Are high-demanding fathers perceived as 'authoritarian' by their teenage sons? What are the attitudes and roles of mothers in families where sons perceived their fathers as high-demanding? These are some of the important questions which need to be answered by further research.

CHAPTER 6

The Achievement Motivation Inventory

THE Inventory was developed to provide a simple and objective measure of Achievement Motivation. As reported in Chapter 2, it contains 22 items — descriptive statements of pictorial stimuli which were tried out in connection with the development of the thematic apperceptive measure of *n* Ach. Each item is followed by six alternatives of which the respondents are required to check one. One specimen item with alternatives is exhibited in Table 6.1. Other items can be seen in Appendix 5. Two each of the six alternative responses, were achievement-related, task-related and unrelated to achievement, and are designated respectively as AR, TR and UR, for the sake of reporting. In Table 6.1, alternatives 3 and 6 are AR; 2 and 5 are TR and 1 and 4 are UR. The stories written to pictures were coded as either achievement-related imagery (AI), task-related (TI) or unrelated (UI) and the alternatives under each AMI item were drawn from such stories.

TABLE 6.1

SPECIMEN ITEM FROM THE ACHIEVEMENT MOTIVATION INVENTORY

-
- | | |
|----|--|
| 2. | A boy is painting. |
| 1. | He is thinking whether to complete the painting or to leave it incomplete. |
| 2. | He is practising painting. |
| 3. | He is painting in order to participate in the school's annual art competition. |
| 4. | He is thinking whether to put colours in the painting or not. |
| 5. | That boy is learning the art of painting. |
| 6. | He is thinking that he would paint beautiful pictures after learning to draw nicely. |
-

Four scores were assigned on the Inventory following the procedure described in Chapter 2. Any one response can be either AR, TR or UR. The AR, TR and UR were counted to assign AR, TR and UR scores to each subject. The total number of UR responses were deducted from AR responses to form the fourth score, *i.e.*, the total AMI score.

The Inventory was administered as a part of the survey of the Achievement Motive to high school boys in Delhi. About 1,000 Class IX boys from 32 different schools formed the Ss of the Survey. The number of AR ranged between 2 to 20 and the TR and UR from 0 to 14. Table 6.2 presents mean AR, TR and UR. Each subject gave 22 responses (to 22 AMI items) of which about 50 per cent were AR with mean AR at 11.40. The TR and UR responses together formed the remaining 50 per cent. The distribution patterns of TR and UR appeared to be similar to each other and different from that of AR.

TABLE 6.2

MEAN, MEDIAN AND SD OF AMI (TOTAL), AMI-AR,
AMI-TR AND AMI-UR SCORES OF A RANDOM
SUB-SAMPLE

$N = 180$

<i>Inventory Scores</i>	<i>Mean</i>	<i>Median</i>	<i>SD</i>
AMI (total)	6.75	6.46	6.10
AMI-AR	11.40	11.04	4.03
AMI-TR	6.16	6.08	2.74
AMI-UR	4.61	4.28	2.99

AMI results by schools

Table 6.3 records mean AMI scores for schools by their SES and AS. The mean for the High AS and High SES Schools ranged between 3.83 and 6.95, with an over-all mean of 5.47. The means for High AS and Middle SES schools ranged between 4.04 and 9.00, with an over-all mean of 5.97, and the means for Low AS and Low SES schools ranged between 6.40 and 11.33, with an over-all mean of 8.27. The Ss studying in Low SES schools with Low AS showed significantly higher AMI scores ($t = 4.6$; $P < .0005$) than those in High SES schools with High AS as well as those from High AS and Middle SES schools, as shown in Table 6.4. Boys in Low AS schools showed higher AMI score than those in High AS schools (chi-square = 9.05; $P < .02$).

Boys studying in Low SES schools showed higher AMI score and AR than those in High and Middle SES schools (chi-square, respectively = 22.016 and 22.05; both $P < .001$). On the other hand the latter, *i.e.*, the boys in High and Middle SES, showed more TR and UR than the former as seen in Tables 6.5 and 6.6. The Low category represents the bottom 25 per cent of the distribution, and the High top

25 per cent, with middle 50 per cent forming the Middle category of TR and UR. About 45 per cent of the High SES school boys and 40 per cent of the Middle SES showed High UR response as compared to 18.2 per cent of the Ss from Low SES schools (chi-square = 36.99; $df = 4$; $P < .001$). The High SES school boys showed higher TR than those in Low SES schools (chi-square = 13.30; $df = 4$; $P < .01$).

TABLE 6.3

SCHOOL-WISE MEAN AND SD OF AMI SCORES BY SCHOOLS' ACHIEVING STATUS AND SCHOOLS' SOCIO-ECONOMIC STATUS

<i>Schools' AS and SES</i>	<i>Code No.</i>	<i>N</i>	<i>Mean AMI</i>	<i>SD</i>	<i>Mean n Ach</i>	<i>SD</i>
High AS/High SES	07	39	6.95	5.85	8.46	5.68
	12	33	4.60	6.87	8.94	6.00
	09	30	6.00	7.14	9.67	5.43
	08	30	3.83	4.56	7.58	5.94
	10	38	4.26	6.06	6.45	4.57
	04	47	6.55	6.34	7.34	4.93
High AS/Middle SES	13	41	6.80	5.84	8.75	5.89
	15	33	3.69	5.44	7.27	5.91
	16	44	7.97	5.59	6.59	5.41
	19	50	6.50	6.18	7.40	6.50
	06	30	1.16	5.27	4.33	4.42
	27	34	7.97	5.25	9.12	6.36
	11	27	4.18	7.87	5.71	5.46
	03	38	2.94	5.63	7.24	5.70
	01	36	4.42	7.67	7.06	5.05
Low AS/Middle SES	20	35	5.42	5.55	6.43	5.29
	18	30	9.00	6.19	8.50	4.31
	02	19	5.31	9.71	9.75	7.33
	17	34	4.44	5.19	4.56	5.73
	14	34	4.04	4.30	2.65	3.88
	05	34	6.05	5.95	7.06	6.66
	21	27	6.59	6.98	4.81	5.69
	26	23	7.47	5.60	8.26	6.85
	28	05	7.00	6.78	10.00	7.07
Low AS/Low SES	32*	15	11.33	6.01	6.56	4.67
	31*	16	8.06	4.74	9.70	5.28
	29*	23	9.43	4.64	6.60	4.84
	30*	41	7.65	4.94	6.30	3.89
	25	16	8.37	4.95	6.33	4.64
	22	17	9.00	5.42	10.31	5.44
	24	25	6.40	4.27	4.13	5.24
	23	27	7.88	5.23	8.21	5.54

* Rural schools

TABLE 6.4

AMI MEAN SCORES BY SCHOOL AS FOR SCHOOL SES

<i>Variables</i>	<i>N</i>	<i>Mean</i>	<i>d</i>	<i>t</i>	<i>p</i>
A. HAS/HSES	217	5.47	A and B	0.313	NS
			A and C	0.877	NS
B. HAS/MSES	333	5.30	A and D	4.910	.0005
			B and C	1.230	NS
C. LAS/MSES	241	5.97	B and D	5.600	.0005
D. LAS/LSES	180	8.27	C and D	4.600	.0005

H = High, L = Low, M = Middle.

TABLE 6.5

CONTINGENCY TABLE OF SCHOOLS' STATUS AND UR-AMI

<i>UR-AMI</i>	<i>School's Status</i>			<i>Total</i>	
	<i>High</i>	<i>Middle</i>	<i>Low</i>	<i>N</i>	<i>%</i>
Low	27.8	32.9	45.9	332	34.2
Medium	27.3	26.6	35.9	277	28.5
High	44.9	40.5	18.2	363	37.3
<i>N</i> =	216	575	181	972	
<i>%</i> =	22.2	59.2	18.6		

Chi-square = 36.989; *df* = 4; *P* < .001

TABLE 6.6

CONTINGENCY TABLE OF SCHOOLS' STATUS AND TR-AMI

<i>TR-AMI</i>	<i>School SES</i>			<i>Total</i>	
	<i>High</i>	<i>Middle</i>	<i>Low</i>	<i>N</i>	<i>%</i>
Low	47.2	34.8	42.0	378	38.9
Middle	22.7	33.4	29.3	294	30.2
High	30.1	31.8	28.7	300	30.9
<i>N</i> =	216	575	181	972	
<i>%</i> =	22.2	59.2	18.6		

Chi-square = 13.297; *df* = 4; *P* < .01

AMI results by schools' geographical status

Four rural schools contributed 97 Ss, *i.e.*, ten per cent of the total Survey sample. These boys showed a considerably higher AMI score than the urban boys. Nearly 78 per cent of the rural Ss showed medium or high AMI scores against 62 per cent of the urban Ss (chi-square = 10.14; $df = 2$; $P < .005$). The urban Ss showed a higher rate of UR. Nearly 68 per cent of these Ss showed medium or high UR, as against 49 per cent of the rural Ss (chi-square = 29.14; $df = 2$; $P < .001$). The urban and rural Ss showed no difference in the rate of TR.

AMI results by pupils' socio-economic status

The pupils' SES showed significant relationship neither with AR, nor AMI total score, nor TR. However, about 47 per cent of the Ss with High SES showed High UR as compared to 39 per cent with Middle and also 39 per cent with Low SES, and only 16.8 per cent boys from the rural group (chi-square = 26.18; $df = 6$; $P < .001$), as seen in Table 6.7.

TABLE 6.7

CONTINGENCY TABLE OF SE STATUS AND UR-AMI

UR-AMI	Rural Group	SE Status			N	%
		High	Average	Low		
Low	46.9	32.0	34.0	30.1	327	34.2
Medium	36.3	20.8	26.8	30.1	273	28.6
High	16.8	47.2	39.2	39.9	355	37.2
N =	113	53	503	286	955	
% =	11.8	5.5	52.7	29.9		

Chi-square = 26.179; $df = 6$; $P < .001$.

* There were 97 rural boys for whom no fathers' SES data were available. Twenty urban boys, for whom also this was not available, are included in this group.

AMI results by fathers' educational level and occupation group

No socio-economic status data were available for the rural boys. The urban boys were classified by their fathers' educational level. The rural boys were retained as a group by themselves. These boys, as mentioned above, showed a considerably higher AMI score than the

urban boys. There were 113 boys for whom information on their fathers' educational level as well as occupational group was not available. Of these, 97 were rural boys and the rest urban. Nearly 47 per cent of these 113 boys, most of whom were rural boys, showed a low rate of UR as against 34 per cent, 30 per cent and 30 per cent boys respectively of fathers with High EL, Middle EL and Low EL. On the other hand, 38 per cent, 43 per cent and 39 per cent boys respectively of fathers with High, Middle and Low EL as against about 17 per cent rural boys showed a high rate of UR ($\chi^2 = 35.22$; $df = 14$; $P < .005$). Nearly 75 per cent of the Ss from the rural group showed medium or high AMI score as compared to about 60 per cent boys of fathers in the professional group, about 72 per cent boys of fathers from the semi-professional group, 63 per cent boys of fathers from the skilled workers group and about 67 per cent boys of fathers from the unskilled workers group ($\chi^2 = 24.07$; $df = 12$; $P < .025$) as seen in Table 6.8.

TABLE 6.8

CONTINGENCY TABLE OF FATHERS' OCCUPATIONS AND AMI SCORING

AMI Scorings	Rural Boys*	Profes- sional	Semi- Profes- sional	Cleri- cal	Skilled	Semi- skilled	Un- skilled	N	%
Low	24.6	39.6	26.9	40.6	36.9	41.3	33.3	342	35.8
Medium	38.6	26.6	37.7	34.3	34.4	33.3	45.6	332	34.8
High	36.8	33.3	35.4	25.2	28.7	25.3	21.1	281	29.4

$\chi^2 = 24.069$; $df = 12$; $P < .025$.

* See footnote to Table 6.7.

Nearly 47 per cent of the rural boys as seen in Table 6.9 showed a low rate of UR as against about 29 per cent, 44 per cent, 30 per cent, 33 per cent, 35 per cent and 23 per cent boys, respectively, of fathers doing professional, semi-professional, clerical, skilled, semi-skilled and unskilled work ($\chi^2 = 43.80$; $df = 12$; $P < .001$). These groups showed no difference in their rate of TR.

AMI AND NEED FOR ACHIEVEMENT

As mentioned above and in Chapter 2, the AMI instrument was developed on the basis of the stories written to pictures for *n* Achievement. It was hoped that the results on the AMI would show an acceptable, if not high, positive relationship with *n* Ach scores. Table 6.10 presents

TABLE 6.9

CONTINGENCY TABLE OF FATHERS' OCCUPATION AND UR-AMI

UR-AMI	Rural*	Professional	Semi-Professional	Clerical	Skilled	Semi-skilled	Unskilled	N	%
Low	47.4	29.5	43.8	30.2	32.8	34.7	22.8	327	34.2
Medium	36.0	28.8	25.4	25.8	28.7	21.3	43.9	272	28.5
High	16.7	41.7	30.8	44.0	38.5	44.0	33.3	356	37.3
N =	114	139	130	318	122	75	57	955	
% =	11.9	14.6	13.6	33.3	12.8	7.9	6.0		

Chi-square = 43.798; $df = 12$; $P < .001$.

* See footnote to Table 6.7.

the relevant results which make an interesting study. The total AMI score and the average AR on the AMI showed highly significant positive correlation with the n Achievement scores ($P < .001$). The n Ach showed equally highly significant but negative correlations with the average UR and TR responses on the AMI ($P < .001$). The number of TAT type stories coded as achievement-related imagery (AI) showed similarly significant positive correlation with the total AMI score and the average AI response on the AMI ($P < .001$). The stories which were coded as task-related imagery (TI) or as unrelated imagery (UI) showed significant negative correlations with AMI score and the average AR on AMI ($P < .01$). These stories in turn showed significantly positive relationship with the average UR and TR on the AMI, except in one case where the UI stories did not show significant relationship with the TR on the AMI. It was, therefore, evident that the AMI score and the AR on the AMI were related to n Ach differently from the UR and TR on the AMI. It seemed that the AMI was measuring two different behavioural characteristics which were inversely related to each other (Table 5.11). The significant negative relationship between n Ach and the non-AR on the AMI raised important questions. Did the UR or TR on the AMI indicate some kind of avoidance motive similar to anxiety?

AMI responses and n Achievement characteristics

The results in Table 6.11 show negative correlations between the UR and TR on the AMI and the n Ach sub-categories, whereas the AMI score showed positive correlations with the sub-categories, some

TABLE 6.10

CORRELATION BETWEEN *n* ACH CATEGORIES AND AMI CATEGORIES*N* = 973

<i>n Ach Categories</i>	<i>AMI Total</i>	<i>AMI Categories</i>		
		<i>UR</i>	<i>TR</i>	<i>AR</i>
<i>n Ach Total Score</i>	.175 ^c	-.172 ^c	-.095 ^c	.162 ^c
Unrelated Imagery (UI)	-.102 ^b	.114 ^b	.051	-.100 ^b
Task Related Imagery (TI)	-.094 ^b	.090 ^b	.072 ^a	-.086 ^b
Achievement Related Imagery (AI)	.152 ^c	-.172 ^c	-.092 ^c	.138 ^c

^a Significant at .05 level^b Significant at .01 level^c Significant at .001 level

TABLE 6.11

CORRELATION BETWEEN *n* ACH SUB-CATEGORIES AND AMI CATEGORIES*N* = 973

<i>n Ach Characteristics</i>	<i>AMI Total</i>	<i>AMI Categories</i>		
		<i>UR</i>	<i>TR</i>	<i>AR</i>
<i>N</i>	.150 ^c	-.164 ^c	-.096 ^b	.151 ^c
<i>I</i>	.147 ^c	-.162 ^c	-.102 ^b	.134 ^c
<i>Ga+</i>	.091 ^c	-.061 ^a	-.051	.062 ^a
<i>Ga-</i>	.018	-.030	-.014	.040
<i>Bp</i>	.027	-.020	.025	.000
<i>Bw</i>	.057 ^a	-.053 ^a	-.040	.067 ^a
<i>H</i>	.004	-.017	-.006	.006
<i>G+</i>	.113 ^a	-.095 ^c	-.106 ^c	.138 ^c
<i>G-</i>	.002	-.015	-.010	.019
<i>Ach Th</i>	.150 ^c	-.147 ^c	-.080 ^b	.146 ^c

^a Significant at .05 level^b Significant at .01 level^c Significant at .001 level

of which were highly significant, notably with Need (*N*) ($P < .01$) and Positive Affect (*G+*) ($P < .01$). These results tended further to support the view that the AMI instrument was discharging the two

following functions: (i) showing up some behaviour similar to or positively related to n Ach; and (ii) providing information on another segment of behaviour which was significantly the opposite of n Achievement.

AMI responses and pupil schema

Table 6.12 presents data on the relationship between AMI responses and pupils' perception of expected success. It is interesting to note that AMI score and the AR on the AMI showed most of the correlations as positive whereas the UR and TR on the AMI showed most of them as negative. One, *i.e.*, the correlation between UR and the self-expected vocational success, was significantly higher than the chance level ($r = -.217$; $P < .01$), whereas, the AMI total score and the AR showed positive relationship with self-expected vocational success (SEVS). (Respectively, $r = .231$; $P < .01$ and $r = .121$; $P < .05$). The AMI score showed significant positive relationship with pupils' perception of teachers' expected vocational success ($r = .124$; $P < .01$). No other correlations were found to be significant. Notwithstanding their significance, the trends in relationship as seen in Table 6.12 were noteworthy.

AMI AND SCHOOL PERFORMANCE

The AMI score showed positive relationship with total school marks ($r = .109$; $P < .01$) as well as with marks in English ($r = .114$; $P < .01$) and mathematics ($r = .067$; $P < .05$). The results, presented in Table 6.13, indicated interesting relationship trends. The AR on the AMI showed positive relationship ($r = .089$; $P < .01$) whereas the UR and TR showed negative relationship ($r = -.078$ and $-.084$; both $P < .01$) with total school performance. The AMI scores and the AR showed positive trends in relationship with performance in the various school subjects whereas UR and TR showed negative trends. The AMI responses showed similar trends in their relationship with verbal intelligence, *i.e.*, AR showing positive ($P < .01$) and TR and UR showing low negative correlations (NS).

AMI and school performance by schools

The boys studying in schools designated as Low achieving (Low AS) showed significantly higher AMI score (chi-square = 9.05; $df = 2$; $P < .02$) and lower rate of UR (chi-square = 15.67; $P < .001$) than those studying in High AS schools. The school-wise analyses, recorded

TABLE 6.12

CORRELATION BETWEEN PUPIL SCHEMA AND AMI VARIABLE
N = 193

Item	Pupil Schema Variable	AMI Score	AMI Categories		
			UR	TR	AR
1.	PPESC	.080	-.008	-.027	.047
2.	PPEVS	.072	-.012	-.066	.093
3.	PTESC	-.002	.038	.034	-.004
4.	PFEVS	.075	-.044	-.036	.088
5.	PTESS	.036	-.018	-.004	-.034
7.	PFESC	-.052	.014	.066	-.062
8.	PPESC	.060	-.046	-.037	.000
9.	PTEVS	.124 ^a	-.074	-.083	.094
10.	PFESS	.096	-.024	-.115	.094
11.	SESC	.048	-.016	-.025	.039
12.	SEVS	.231	-.217 ^b	-.006	.121 ^a
13.	SESS	.055	-.103	-.023	.044

^a Significant at .05 level

^b Significant at .01 level

TABLE 6.13

CORRELATIONS OF AMI AND ITS SUB-CATEGORIES WITH SCHOOL PERFORMANCE IN
 VARIOUS SUBJECTS

AMI Scores	Total School Marks <i>N</i> = 893	Marks in					
		English <i>N</i> = 894	Hindi <i>N</i> = 552	Maths. <i>N</i> = 844	Science subjects <i>N</i> = 342	Non- science <i>N</i> = 561	Intelligence <i>N</i> = 972
AMI-Total Score	.109 ^c	.144 ^c	-.003	.067 ^b	.903	.055	.068 ^b
AMI-UR	-.078 ^b	-.114 ^c	.032	-.076 ^b	-.035	-.019	-.039
AMI-TR	-.084 ^c	-.048	-.003	-.037	-.162 ^a	-.109	-.057
AMI-AR	.089 ^c	.098 ^c	.003	.041	.103 ^a	.050	.087 ^b

^a Significant at .05 level

^b Significant at .01 level

^c Significant at .005 level

in Table 6.14, revealed an erratic relationship between AMI scores and the total school performance. One of the five High SES schools with High AS showed significant positive relationship ($r = .36$; $P < .05$). Four out of the nine Middle SES schools with High AS showed significant relationship — three positive ($P < .05$), and the fourth, negative ($r = -.40$; $P < .01$). One out of the seven Middle SES schools with Low AS showed positive relationship ($r = .52$; $P < .01$). None of the four Low SES schools with Low AS showed significant results. The AMI total scores showed similarly erratic results with scores on group tests of verbal intelligence. Seven out of 24 schools showed negative results, of which one was significant ($r = -.33$; $P < .05$). Two schools showed positive relationship ($r = .30$ and $.34$ both $P < .05$).

Theoretical validation of the Achievement Motivation Inventory

Mandler and Sarason (1952) and Sarason *et al.* (1958b) have studied the behavioural correlates of test anxiety. Generally, they support the view that high test-anxiety scores are associated with poor task performance. They propose that the parents of a child who is high in test anxiety should evaluate the child's behaviour frequently and in such a way that the child perceives the evaluation and reacts with hostility towards the parents. The expression of this hostility is punished; this produces guilt and fear of withdrawal of love. The child now attempts to win approval or support or love from the parents by conforming to their wish. Atkinson and Litwin (1959) have presented a different conception of test anxiety. They suggest that the test-anxiety score be viewed as a manifestation of the motive to avoid failure. The obtained relationships between n Ach and test anxiety have been generally negative but not significant under neutral conditions (Atkinson and Litwin, 1960a; Litwin, 1958). In many studies, achievement values, measured in a variety of ways, have been unrelated to the n Ach score. (Atkinson and Litwin, 1959; d'Charms *et al.*, 1955; Marlow, 1958; McClelland, 1958; Strodtbeck, 1958). Most of the available evidence on the inter-relationship among these measures, *i.e.*, the measures of n Ach, achievement values and test anxiety, point to the relative independence of these three achievement-related variables.

The results of the present investigation obviously stand apart from those of the studies mentioned above. The non-achievement-related responses on the AMI, designated as task-related (TR) or unrelated to achievement (UR), showed very significant negative relationship with n Achievement. Those Ss who were high on n Achievement were found to be low on UR—TR on the AMI. These negative results were more similar to Raphelson (1957) who obtained a negative correlation of .43

TABLE 6.14

SCHOOL-WISE CORRELATIONS BETWEEN AMI, SCHOOL
PERFORMANCE AND INTELLIGENCE

	<i>School No.</i>	<i>AMI/School Performance</i>	<i>AMI/Intelli- gence</i>
High AS/High SES	07	-.06	.18
	12	-.22	.04
	09	.36 ^a	.30 ^a
	10	-.04	-.24
	04	-.12	.06
High AS/Middle SES	13	.32 ^a	-.06
	15	-.40 ^b	.03
	16	.11	.02
	19	.07	-.04
	06	.12	-.33 ^a
	11	.39 ^a	.13
	27	.39 ^a	.13
	03	.10	.25
	01	.11	-.04
Low AS/Middle SES	20	.03	.02
	18	.03	.09
	17	.18	-.06
	14	-.08	.02
	05	.34	.16
	21	.18	-.13
	26	.52 ^b	.16
Low AS/Low SES	29	.05	.34 ^a
	30	.22	.11
	24	.03	.03
	23	.25	.01
Combined Group		.109 ^d	.067 ^c

^a Significant at .05 level

^b Significant at .01 level

^c Significant at .025 level

^d Significant at .005 level

($N = 25$) between n Ach and test anxiety. The n Achievement was positively related to school performance whereas TR and UR on the AMI showed negative relationship with the performance at the annual school examination. This led to the assumption that n Achievement was providing a measure of the motive to approach success (M_s), and that the TR and UR on the AMI were indicating the motive to avoid failure (M_{AF}) or test anxiety.

Following Atkinson and Litwin (1960a), the theory of achievement motivation predicts a positive relationship of n Achievement and a negative relationship of test anxiety with performance. The present results provided support to this view. The theory further predicts that Ss who are simultaneously classified as High on n Ach (above the median) and Low on anxiety, would show the greatest differences with the Ss classified as Low on n Ach and High on test anxiety, on competitive tasks of intermediate difficulty. The school annual examination used in the present investigation was certainly a competitive situation in which boys with high n Achievement performed higher than those who were high on TR-UR responses on the AMI. The same examination might have been perceived differently by different pupils. No direct data on the subjective probability of success at this particular examination were available. However, the Ss were interviewed, some two months before the annual examination for their perceptions of expected success. This was assumed to indicate the individual's subjective probability of success at the school examination.

The theory assumes that all individuals have both motives: a motive to achieve success (n Ach or M_s) and a motive to avoid failure (test anxiety or M_{AF}). These motives are inevitably aroused in a person at the time of the performance, creating an approach-avoidance conflict. But individuals High on M_s and Low on M_{AF} tend to show greater performance than the opposite group *i.e.*, those Low on n Ach and High on anxiety. In order to test this theory in the present investigation, it was predicted that the Ss High on n Ach (above the median) and Low on UR+TR responses on AMI (below the combined median) would show greater school performance (total marks) than the three other possible groups, namely: (i) those Low on n Ach and High on TR+UR (AMI); (ii) those High on both the tests, and (iii) those Low on both. It was further predicted that the above groups would show differences in their expectancy of school success, with a greater proportion of Ss in the first group above showing moderate expectation.

The results presented in Table 6.15 confirm the above prediction about the performance at the school examination. The boys High on n Achievement and Low on TR+UR (AMI) showed significantly higher

performance ($t = 3.33$; $P < .005$) than those Low on n Achievement and High on TR+UR (AMI). The former group of boys (*i.e.*, those High on n Achievement and Low on TR+UR on AMI) showed greater school performance than those Low on both the tests ($t = 2.37$; $P < .01$).

The prediction regarding the expectancy of school success, however, could not be confirmed. A greater proportion of those boys who were Low on n Achievement and High on UR (AMI), about 54 per cent, showed moderate SESS as compared to 34.3 per cent of those High on n Ach and Low on UR (AMI), as seen in Table 6.16. Subjects high on n Ach and Low on UR (AMI) showed slightly lower mean SESS than those Low on n Ach and High on UR (AMI) ($t = \text{NS}$). The pupil-schema variables, as reported in Chapter 5, on the whole showed erratic and lower relationship with n Achievement. The SESS, however, showed significant positive correlation (Table 5.10) with total school performance.

TABLE 6.15

MEAN PERFORMANCE AT SCHOOL EXAMINATION FOR Ss CLASSIFIED ON n ACH AND TR+UR (AMI)

No.	Tests		N	Mean performance *at examination	Difference	t	P
	n Ach	TR+UR (AMI)					
1.	High	Low	45	45.8	1 and 4	3.33	.005
2.	High	High	29	42.9	1 and 2	1.13	NS
3.	Low	Low	43	39.7	1 and 3	3.37	.01
4.	Low	High	41	37.4	2 and 3	1.15	NS

TABLE 6.16

EFFECT OF INDIVIDUAL DIFFERENCES IN TWO MOTIVES (n ACH AND ANXIETY), TESTED SEPARATELY, ON EXPECTANCY OF SCHOOL SUCCESS

No.	n Ach	UR(AMI)	N	Mean	Mean Differences Between	t	P
1.	High	Low	61	7.87	1 and 4	0.46	NS
2.	High	High	38	6.84	1 and 2	2.31	.025
3.	Low	Low	41	7.27	1 and 3	1.37	NS
4.	Low	High	54	8.05	4 and 3	1.85	.05

Those Ss who were High on *n* Achievement and Low on UR (AMI) showed the highest performance at the school examination (Table 6.15). From amongst these Ss, those who indicated Moderate expectancy of school success showed higher performance at the school examination than those who indicated High or Low expectancy, more definitely than those showing Low expectancy ($z = 2.53$; $P < .0062$), as seen in Table 6.17. Within the group of those who indicated Moderate expectancy, the Ss who were High on *n* Ach and Low on UR (AMI) showed greater performance at the examination than the others ($z = 2.9$; $P < .0019$). The results in Table 6.17 provided further evidence in support of the theory of achievement motivation mentioned above (Atkinson and Litwin, 1960).

TABLE 6.17

EFFECT OF INDIVIDUAL DIFFERENCES IN TWO MOTIVES (*n* ACH AND ANXIETY) TESTED SEPARATELY AND EXPECTANCY OF SUCCESS ON SCHOOL PERFORMANCE

Tests		% Above Median Performance at Examination by Expectancy of School Success					
<i>n</i> Ach	UR(AMI)	HIGH		MODERATE		LOW	
		(A)		(B)		(C)	
		<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1.	High Low	21	71.42	24	79.10	15	53.80
2.	Low High	11	54.55	24	50.00	07	14.30
3.	High High	04	50.00	13	69.20	17	47.10
4.	Low Low	10	70.00	13	46.00	14	35.00
Differences Between		<i>z</i>		<i>P</i> *			
B1 and B2		2.90		.0019			
B1 and C1		2.53		.0057			
A1 and C1		0.24		NS			
B1 and B4		2.57		.0051			

* Mann-Whitney one-tailed U-tests of predicted differences

CONCLUSION

The Achievement Motivation Inventory (AMI), developed on the basis of the TAT type pictorial cues and stories written to them, was found to provide two distinct measures—one on an achievement-related motive, similar to test anxiety or the motive to avoid failure (M_{AF}), and

another on achievement-related values. The two showed negative correlation with each other. The former, *i.e.*, the one similar to M_{AF} showed negative correlations with *n* Achievement, total school performance and self-expected vocational success. The latter, *i.e.*, the score of AMI (total) and AR (AMI) showed positive correlations with all the three variables mentioned above. The rural Class IX boys showed higher score on Achievement values and lower on M_{AF} than the boys in urban schools. The boys from Low SES and Low AS schools showed similarly lower M_{AF} and higher Achievement values than those studying in High SES and High AS schools. The results obtained in a real school situation, provided support to the theory which predicts greater performance for individuals High on *n* Achievement (M_S) and Low on M_{AF} at some competitive task of intermediate difficulty.

Summary And Conclusions

THE Survey of the Achievement Motive in High School Boys was undertaken with the two following specific objectives:

1. To determine the level of the achievement motive in high school boys.
2. To study the relationship of the achievement motive with school performance.

The Survey was confined to boys studying in Class IX in the higher-secondary schools of Delhi. Thirty-two schools were selected on the basis of their socio-economic and achievement status. About 1,000 boys were studied. These boys came from different socio-economic sections of the community.

Development of instruments

A thematic apperceptive measure of achievement motive (*n* Achievement) was developed. Some 50 picture cues were tried out in three stages, out of which six pictures were selected for use in the Survey. The selected pictures showed satisfactory discrimination and evokability for achievement imagery. The pictures contain cues familiar to the high school boys. The Achievement Motivation Inventory (AMI) was developed as the second instrument for obtaining data on achievement motivation. The Inventory was developed with the help of the pictorial cues and stories written to them by the high school boys. It contains 22 items, each having six multiple choices. The Inventory gives four scores. The total number of achievement-related responses (AR) form the score on AR (AMI). The UR and TR scores are obtained in a similar manner. A total AMI score is obtained by deducting UR scores from AR scores. It was hoped that the AMI would provide information on some aspects of achievement motivation similar to that shown by the thematic apperceptive measure. An interview schedule was developed for a study of the pupil schema of the achievement demands on him.

The thematic apperceptive measure and the AMI, along with a group test of intelligence and a socio-economic status scale, were administered to all the selected pupils in 32 schools. A random sample of about 200 Ss was drawn, taking every fifth subject from each school, for the

study of pupil schema. These pupils were interviewed individually on the day following the group tests in respective schools.

The TAT stories were scored by a team of three trained scorers. The scorers obtained a coding reliability of .85 and above.

RESULTS

Level of the achievement motive

The *n* Ach level in Delhi school boys seemed to compare well with that found in certain studies with German and U.S. teen-age boys. The level was found to be lower than that shown by the Brazilian and the Japanese boys. The boys in the present survey showed a slightly higher *n* Achievement level than that shown by Madras boys in an earlier study by McClelland. The results in the present survey were not strictly comparable with the results obtained elsewhere as different pictorial cues were used in these studies. These results therefore would need re-checking in more comparable and systematic studies.

The high school boys on the whole showed low verbalization of several *n* Achievement characteristics, particularly Goal Anticipation (Ga+ and Ga-), Obstacles (Bp and Bw), Help by another person (H) and Emotions (G+ and G-). The Ss showed apparently high expression of Need (N), Instrumental Activity (I) and Achievement Thema (Ach Th).

Need for Achievement by schools and social-class variables

The rural and urban high school boys showed no difference in their *n* Achievement levels. The boys studying in Low SES and Low AS schools showed an *n* Achievement level equal to that shown by boys studying in schools with High SES and High AS, and higher than the level shown by those studying in schools with Middle SES and High AS. The latter's *n* Achievement level was lower than the level shown by the boys in High SES and High AS schools. The composite socioeconomic status and the fathers' income showed no difference in the levels of *n* Achievement. The boys of fathers with high and low education showed higher *n* Achievement level than that shown by the boys of fathers with secondary education. The boys of fathers with high education showed the highest level of *n* Achievement. The boys of fathers in the occupation groups of skilled and unskilled workers showed a higher level of *n* Achievement than that shown by the boys of fathers in the clerical or small shopkeepers' group. The boys from the semi-professional group showed the highest level, and those from the professional group (topmost on the scale) showed nearly

the lowest level of n Achievement. With education controlled, the working-class boys showed a higher level of n Achievement than that shown by boys from the lower middle-class white-collar workers' group. Within the lower middle class (*i.e.*, the occupational group of clerks and small shop-keepers and shop employees), the boys of fathers with high education showed higher n Achievement level than those of fathers with secondary or low education. The boys of working-class fathers with low education showed n Achievement equal in level to that of boys of lower middle-class fathers with high education. The boys studying in schools with High SES and High AS showed greater verbalization of Bp than that shown by the boys in Low SES and Low AS schools. The rural boys showed greater verbalization of Bw than the urban boys.

Need for achievement and school performance

The n Achievement showed positive correlation with the total performance at the school annual examination as well as with the performance in individual subjects. Several of the n Achievement characteristics also showed positive relationship with school performance. The school-wise analyses however revealed erratic trends in the relationship between n Achievement and school performance. The High SES boys showed no relationship between n Achievement and school performance whereas the Low SES boys showed a positive relationship. The Low SES and High SES boys showed no difference in their school performance as such. Both showed a somewhat higher level of school performance than that shown by boys in schools with Middle SES. Within fathers' occupational groups, the boys showed no relationship between n Achievement and school performance. However the boys of fathers with Low education showed a positive relationship. The boys of fathers with secondary and High education showed a low relationship. It appeared that the Need for Achievement tended to show a positive relationship with the school performance under certain conditions, and no relationship under certain other conditions.

Need for achievement and pupil schema of achievement demands

It was assumed that boys with high n Achievement show perception of high expectations from them by teachers, peers and fathers, *i.e.*, they perceive high achievement demands on them. No such assumptions were confirmed. On the contrary, the perception of the fathers' expectation of vocational success showed negative correlation with n Achievement. The self-expectancy of school success showed positive correlation with actual success in the annual examination.

THE ACHIEVEMENT MOTIVATION INVENTORY

Measures of two behavioural characteristics

The Achievement Motivation Inventory (AMI), developed on the basis of the TAT type pictorial cues and stories written to them, was found to provide two distinct measures—one on an achievement-related motive similar to the motive to avoid failure (M_{AF}), and the other on achievement-related values. The two showed negative correlation with each other. The former, *i.e.*, the motive similar to M_{AF} showed negative correlations with *n* Achievement, total school performance and self-expected vocational success. The latter, *i.e.*, the score on AMI (total) and AR (AMI) showed positive correlations with all the three variables mentioned above. The rural Class IX boys showed higher score on Achievement values and lower on M_{AF} than the boys in urban schools. The Lower SES and Low AS school boys showed similarly lower M_{AF} and higher Achievement values than those studying in High SES and High AS schools. The results, obtained in a real school situation, provided support to the theory which predicts greater performance for individuals High on *n* Achievement (M_s) and Low on M_{AF} at some competitive task of intermediate difficulty.

SUGGESTED FURTHER RESEARCH

The results obtained in the Survey raised several questions. The following are some of the more important ones which need further research:

1. The social-class variables represent some of the extrinsic factors producing differences in levels of *n* Achievement. Similar research elsewhere has shown the effect of early independence-training and parental attitudes as important factors in the development of *n* Achievement in children. Do parents, particularly mothers, of boys who had shown high levels of *n* Achievement, start early independence-training for their children? Do such parents encourage the feelings of mastery and self-reliance in their children? The findings in the present research were contrary to the findings elsewhere, particularly in the U.S.A., where the middle-class boys uniformly show a higher *n* Achievement level than the levels shown by working-class boys. Systematic studies are therefore needed on child-rearing practices and on the aspirations and attitudes of parents in different sections of the society. The pupil-schema of parental aspirations also need more systematic studies.

2. The boys in High SES schools showed a higher level of *n* Achievement as well as higher mean TR and UR scores on the AMI, suggesting a higher level of the avoidance motive than in boys in the Low SES schools. But the High SES boys showed no relationship between their *n* Achievement and school performance. There was, therefore, some other motive(s) which seemed to help the High SES boys to attain a higher rate of performance at the school examination. What are these motives?
3. The Class IX boys in Low SES schools showed, in the present Survey, a level of performance at the annual school examination equal to that shown by the boys in High SES schools. This was in spite of the well-known wide differences in the 'quality' of 'educational environment' between the two groups of schools. The yearly results at the Higher Secondary School examination have been traditionally higher for the High SES boys than for those in Low SES schools. The Low SES boys showed the same *n* Achievement level as shown by the High SES boys, but a lower mean scores on TI and UI (AMI), suggesting a lower level of the avoidance motive (as compared to the High SES boys). This might have helped the present Class IX boys in the Low SES schools to attain the same level of school performance as that shown by the 'better off' boys in the High SES schools. Will these Low SES boys be able to maintain the same level of school performance in the future, particularly at the Higher Secondary School examination?
4. The questions involved in the area suggested in paras 2 and 3 above suggest the importance of the school and the adolescent culture. What is the 'climate' like in High and Low SES schools? What are their educational norms? What is the relationship of these to *n* Achievement, achievement values and avoidance? What are the sources of differences, if any are found, in the adolescent cultures in the two types of schools?
5. Admission into colleges of higher education is largely governed by two factors, namely, the parents' capacity to pay for college education and the candidate's results at the Higher Secondary School examination. It might be predicted that a very few of the present boys in Low SES schools would be able to go in for higher education. What would these boys, particularly those with high *n* Achievement, do then? What vocations are they going to follow? Will they be able to maintain the same level of *n* Achievement? The *n* Achievement has been found to be related to social mobility (Strodtbeck, 1958) and higher rate of

economic activity and productivity (McClelland, 1961, 1965). The individuals with high n Achievement have also been found to show greater self-reliance (McClelland 1953; Winterbottom, 1958; Rosen, 1959). It is predicted that the Low SES school boys, particularly those with high n Achievement, would show the above-mentioned (*i.e.*, greater social mobility, greater economic activity and productivity and greater self-reliance) and similar other behavioural characteristics in their adult lives. In view of India's developing needs, the above hypothetical situation would have important implications for social change and industrial growth in the country.

6. The thematic apperceptive measure of n Achievement obtained further theoretical validation in the present study. The n Achievement results appeared to be consistent with the Theory of Achievement Motivation as far as the performance at the school annual examination was concerned. The system of scoring of TAT type stories (the scoring system 'C') was found to be applicable to stories written to new pictures developed for the specific purposes of the Survey. The two measures, one of an achievement-related motive similar to the motive to avoid failure, and the other of n Achievement, particularly the latter, obtained theoretical validation. These two measures, particularly the former, need concurrent validation with some known questionnaires of anxiety. These instruments are likely to prove useful in further studies like those mentioned above.

REFERENCES

- Alpert, R. and Haber, N. B. The role of situation and picture cues in projective measurement of the achievement motive. In J. W. Atkinson (Ed.) *Motives in Fantasy, Action and Society*. Princeton, N. J.: D. Van Nostrand, 1958, 644-663.
- Atkinson, J. W. Motivational determinants of risk-taking behaviour. *Psychol. Rev.*, 1957, 64: 359-372.
- Atkinson, J. W. Thematic apperceptive measurement of motives with the content of a theory of motivation. In J. W. Atkinson (Ed.) *Motives in Fantasy, Action and Society*. Princeton, N. J.: D. Van Nostrand, 1958, 596-617.
- Atkinson, N. W. *An Introduction to Motivation*. Princeton, N. J.: D. Van Nostrand, 1964.
- Atkinson, J. W. (Ed.) *Motives in Fantasy, Action and Society*. Princeton, N. J.: D. Van Nostrand, 1958.
- Atkinson, J. W., Bastian, J. R., Earl, R. W. and Litusin, G. H. The achievement motive, goal-setting and probability preference. *J. Abnormal & Soc. Psychol.*, 1960(b), 60: 27-36.
- Atkinson, J. W. and O'Connor, Patricia. *Neglected factors in the study of achievement oriented performance: social approval as incentive and performance decrement*. Unpublished manuscript, University of Michigan, 1962.
- Atkinson, J. W. and Litwin, G. H. Achievement motive and test anxiety conceived as motive to approach success and motive to avoid failure. *J. Abnorm. & Soc. Psychol.*, 1960(a), 60: 52-63.
- Atkinson, J. W. and Litwin, G. H. *Achievement motive and test anxiety as motives to approach success and to avoid failure*. Unpublished manuscript, University of Michigan, 1959.
- Atkinson, J. W. and Walker, E. L. The affiliation motive and perceptual sensitivity to faces. *J. Abnorm. & Soc. Psychol.*, 1956, 53: 38-41.
- BODALEV, A. A. On the formation of exactingness towards oneself in school children. *Uchenyye zapiski LGU*, (Academic reports of Leningrad State University, No. 8, 'Psychology'), Leningrad, 1955.
- Bozhovich, L. I. Attitude towards studies as a psychological problem. Referred to in *Psychological Science in USSR*. Washington: Office of Technical Services, U.S. Department of Commerce, 1962, 275-276.
- Bozhovich, L. I., Morozova, N. G. and Slavina, L. S. Psychological analysis of grades as a motive of the study activity of a school child. Referred to in *Psychological Science in USSR*. Washington: Office of Technical Services, U.S. Department of Commerce, 1962, 2: 286.
- Bozhovich, L. I., Morozova, N. G. and Slavina, L. S. Development of study motives in Soviet school children. Referred to in *Psychological Science in USSR*. Washington: Office of Technical Services, U.S. Department of Commerce, 1962, 2: 284.
- Bradburn, Norman M. Need achievement and fathers' dominance in Turkey. *J. Abnorm. & Soc. Psychol.*, 1963, 5: 464-468.
- Bronfenbrenner, U. Socialisation and social class through time and space. In E. E. Maccoby, et al. (Eds.), *Readings in Social Psychology*. New York: Henry Holt, 1958, 400-424.
- Burgess, Elva. Personality factors of over and under achievers in engineering. *J. Educl. Psychol.*, 1956, 47: 89-99.

- Cantril, Hadley. Hopes and fears for self and country. Supplement to *The American Behavioural Scientists*, 1962, 6: 2.
- Coleman, J. The adolescent subculture and academic achievement. *Amer. J. Sociol.*, 1960, 65, 344.
- Crandall, V. I. Achievement. In W. S. Harold (Ed.) *Child Psychology*. The Sixty second Yearbook of the National Society for the Study of Education, Chicago: University of Chicago Press, 1963, 416-459.
- deCharms, R. *et al.* Behavioural correlates of directly and indirectly measured achievement motivation. In D. C. McClelland (Ed.) *Studies in motivation*. New York: Appleton Century Crofts, 1955, 414-423.
- Drews, E. M. and Teapan, J. E. Parental attitudes and academic achievement. In Charters and Gage (Eds.) *Readings in the Social Psychology of Education*. Boston: Allyn and Bacon, 1963, 35-39.
- Feld, Sheila C. *Studies in the Origins of Achievement Strivings*. Unpublished doctoral dissertation, University of Michigan, 1960 (Microfilm).
- Flanagan, John, C. The implications of recent research for the improvement of secondary education. *Amer. Educl. Res. J.*, 1964, 1: 1-9.
- Fraser, E. *Home environment and the school*. London: University of London Press, Ltd., 1959.
- French, Elizabeth. Some characteristics of achievement motivation. *J. Exp. Psychol.*, 1955, 50, 232-236.
- Garrett, H. F. A review and interpretation of investigation of factors related to scholastic success in colleges of arts and sciences and teacher's colleges. *J. Exp. Educ.*, 1949, 18: 91-158.
- Henry, W. E. The thematic apperception technique in the study of culture-personality relations. *Genetic Psychol. Monog.*, 1947, 35: 3-135.
- Kagan, Jerome and Moss, Howard A. *Birth to maturity*. New York: John Wiley, 1962.
- Kuppuswamy, B. *Manual of Socio-economic Status Scale*. Delhi. Manasayan, 1962.
- Lindzey, G. *Projective techniques and cross-cultural research*. New York: Appleton Century Crofts, 1961.
- Litwin, G. *Motives and expectancy as determinants of preference for degrees of risk*. Unpublished honours thesis, University of Michigan, 1958.
- Lowell, E. L. The effect of need for achievement on learning and speed of performance. *J. Psychol.*, 1952, 33, 31, 229.
- Mandler, G. and Sarason, S. B. A study of anxiety and learning. *J. Abnorm. & Soc. Psychol.*, 1952, 47: 166-173.
- Marlowe, D. Some psychological correlates of field independence. *J. Consult. Psychol.*, 1958, 22: 334.
- McClelland, D. C. Some social consequences of achievement motivation. In M. R. Jones (Ed.) *Nebraska Symposium on Motivation*. Lincoln, Nebraska: University of Nebraska Press, 1955.
- McClelland, D. C. Risk-taking in children with high and low need for achievement. In Atkinson J. W. (Ed.) *Motives, in Fantasy, Action and Society*, Princeton, N. J.: D. Van Nostrand 1958, 306-321.
- McClelland, D. C. *The Achieving Society*. Princeton, N. J.: D. Van Nostrand, 1961.

- McClelland, D. C. Need achievement and entrepreneurship: A longitudinal study. *J. Pers. & Soc. Psychol.*, 1965, 1: 4, 389-391.
- McClelland, D. C. and Atkinson, J. W. The projective expression of needs: The effect of different intensities of the hunger drive on perception. *J. Psychol.*, 1948, 25: 205-222.
- McClelland, D. C. et al. *The Achievement Motive*. Princeton, N. J.: D. Van Nostrand, 1953.
- Mehta, Prayag. *Examiners' Manual for a Group Intelligence Test in Hindi*. Delhi: Mansayan, 1962.
- Education for National Development: Report of the Education Commission (1964-66)*. New Delhi: Ministry of Education, 1966.
- Morgan, H. H. Measuring achievement motivation with 'picture interpretations'. *J. Consult. Psychol.*, 1953, 17: 289-293.
- Murry, H. A. *The Thematic Apperception Test and Manual*. New York: Psychological Corporation, 1938.
- Naik, J. P. Problems of the first year class in India. *J. Edu. & Psychol.*, 1964, 21: 4, 4-11.
- Educational Investigations in Indian Universities (1939-61)*. New Delhi: National Council of Educational Research and Training, 1963.
- Raphelson, A. C. The relationship between imagination and direct, verbal and physiological measures of anxiety in an achievement situation. *J. Abnorm. & Soc. Psychol.*, 1957, 54: 13-18.
- Ricciuti, H. N. and Sadacca, R. *The prediction of academic grades with a projective test of achievement motivation: 11, Cross-validation at the high school level*. Princeton, N. J.: Educational Testing Service, 1955.
- Rosen, B. The achievement syndrome: A psycho-cultural dimension of social stratification. *Amer. Sociol. Rev.*, 1956, 21: 203-211.
- Rosen, B. C. Race, ethnicity and achievement syndrome. *Amer. Soc. Rev.*, 1959, 24, 47-60.
- Rosen, B. C. and D'Andrade, R. The psychological origins of achievement motivation. *Sociometry*, 1959, 22: 185-217.
- Ryan, F. J. and Davie, J. S. Social acceptance, academic achievement and academic attitude among high school students. *J. Educl. Res.*, 1958, 52: 101-106.
- Sarason, S. B. et al. Rorschach behaviour and performance of high and low anxiety children. *Child Development*, 1958, 29: 288-295.
- Sears, P. S. The effect of classroom conditions on the strength of achievement motive and work output of elementary school children. *Cooperative Research Project*, No. OE873. Palo Alto: Stanford University, 1965.
- Smith, Charles P. and Feld, Sheila C. How to learn the method of content-analysis for n achievement, n affiliation and n power. In J. W. Atkinson (Ed.) *Motives in Fantasy, Action and Society*. Princeton, N. J.: D. Van Nostrand Co., 1958, 685-905.
- Sinha, D. A psychological analysis of some factors associated with success and failure in university education: A summary of the findings. *Ind. Educl. Rev.*, 1966, 1, 34-47.
- Strodtbeck, F. L. Family interaction, values and achievement. In D. C. McClelland et al. (Eds.) *Talent and Society*. Princeton, N. J.: D. Van Nostrand, 1958.

- Tannenbaum, Abraham J. *Adolescent attitudes towards academic brilliance*. New York: Columbia University Press, 1962.
- Uhlinger, C. A. and Stephens, M. W. Relation of achievement motivation to academic achievement in students of superior ability. *J. Educl. Psychol.*, 1960, 51, 259-266.
- Veroff, J. A scoring manual for the power motive. In J. W. Atkinson (Ed.) *Motives in Fantasy, Action and Society*. Princeton, N. J.: D. Van Nostrand, 1958, 219-233.
- Veroff, J. Thematic apperception in a nation-wide sample survey. In J. Kagan and G. S. Lesser (Eds.) *The Theory and Technique in Thematic Apperceptive Methods*. Springfield: Charles C. Thomas, 1961, 83-118.
- Veroff, J., et al. The use of thematic apperception to assess motivation in a nation-wide study. *Psychol. Monog.*, 1960, 74 (12, Whole No. 499).
- Wan, W. D., Schoneu, E. J. and Olson, W. C. *Failure in School*. Hamburg: Unesco Institute of Education, 1962.
- Winterbottom, Marlan R. The relation of need for achievement to learning experiences in independence and mastery. In J. W. Atkinson (Ed.) *Motives in Fantasy, Action, and Society*. Princeton, N. J.: D. Van Nostrand Co., 1958, 453-478.

APPENDIX 1

A SURVEY OF THE ACHIEVEMENT MOTIVE IN HIGH SCHOOL BOYS

<i>SES/AS</i>	<i>Code No.</i>	<i>School</i>	<i>Location</i>
High SES/High AS	07	Sardar Patel Vidyalaya	Lodhi Colony
	12	Govt. Model Hr. Sec. School	Ludlow Castle
	09	Dhanpatmal Hr. Sec. School	Roop Nagar
	08	Ramjas Hr. Sec. School No. 2	Anand Parbat
	10	Salwan Boys Hr. Sec. School	Rajindra Nagar
	04	H. L. Jain Hr. Sec. School	Sadar Bazar
Middle SES/High AS	13	Govt. Boys Hr. Sec. School No. 1	Sarojini Nagar
	15	Govt. Boys Hr. Sec. School	Moti Bagh
	16	Govt. Boys Hr. Sec. School	Lodhi Road
	19	Govt. Boys Hr. Sec. School	Krishna Nagar
	06	Govt. Boys Hr. Sec. School	Timarpur
	27	Govt. Boys Hr. Sec. School	Mata Sundri Road
	11	Multani D. A. V. Hr. Sec. School	Rajindra Nagar
	03	S. D. Hr. Sec. School	Ajmeri Gate
	01	Arya Hr. Sec. School	Lodhi Colony
Middle SES/Low AS	20	Govt. Boys Hr. Sec. School No. 2	Tilak Nagar
	18	Govt. Boys Hr. Sec. School No. 2	Lajpat Nagar
	02	Vidya Bhawan Hr. Sec. School No. 2	Lodhi Road
	17	Govt. Boys Hr. Sec. School	Kalkaji
	14	Govt. Boys Hr. Sec. School	West Patel Nagar
	05	S. D. Gujrat Hr. Sec. School (1st shift)	Kirti Nagar
	21	Govt. Boys Hr. Sec. School	Mori Gate
	26	Govt. Boys Hr. Sec. School	Bela Road
	28	Chander Bhan Hr. Sec. School	Delhi Cant
Low SES/Low AS	32*	Govt. Boys Hr. Sec. School	Ghitorni
	31*	M. C. Hr. Sec. School	Bijwasan
	29*	Govt. Boys Hr. Sec. School	Khera Khurd
	30*	Govt. Boys Hr. Sec. School	Karala
	25	Govt. Boys Hr. Sec. School	Purana Quila
	22	Govt. Boys Hr. Sec. School No. 2	Subzi Mandi
	24	Govt. Boys Hr. Sec. School No. 1	Qutab Road
	23	Govt. Boys Hr. Sec. School	Bara Hindu Rao

* Rural schools

APPENDIX 2

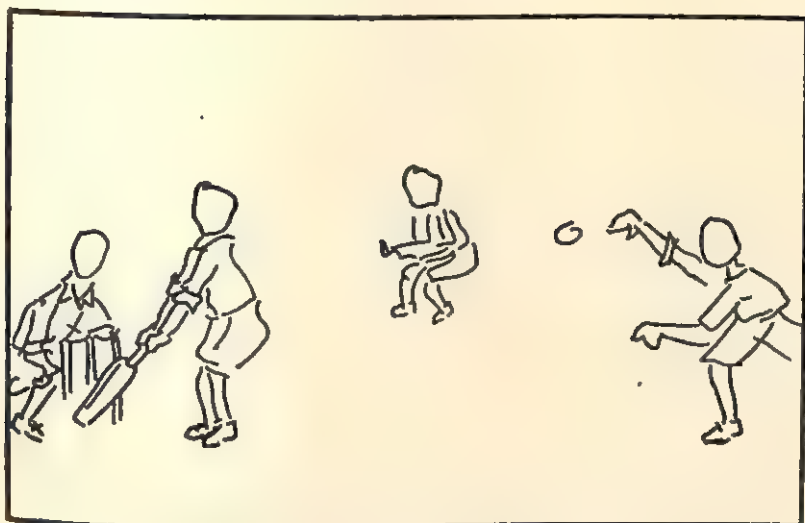
<i>Code No.</i>	<i>Description of Picture Cues</i>
A-1	A boy flying a kite
A-2	A boy day-dreaming about his future career
A-3	A boy with a note-book, an inkpot and a pen
A-4	A sculptor at a statue.
A-5	A boy reading a book, sitting on a cot
A-6	A group of students taking an examination
B-1	A boy with a book in his hand, sitting under the street lamp
B-2	A boy painting
B-3	Three boys erecting a tent
B-4	A doctor and a patient
B-5	A boy looking at a toy aeroplane
B-6	A mother and her son
C-1	A boy hitting the target
C-2	A group of boys playing cricket
C-3	A boy receiving a prize
C-4	Two boys looking at the distant hills
C-5	A boy reading a book
C-6	A man handing over some papers to a boy sitting at his desk
D-1	A teacher with a group of boys
D-2	A farmer tilling the land
D-3	A boy doing some experiment
D-4	A boy learning the <i>tabla</i> from his teacher
D-5	Two boys playing hockey
D-6	A relay race in action
G-1	A boy looking at a globe
G-2	A boy climbing up a rope
G-3	A boy repairing a hand-pump. Another boy helping him
G-4	An old man patting a boy on the back

APPENDIX 3

SIX PICTURES USED IN THE SURVEY







APPENDIX 4

ITEMS IN THE INTERVIEW SCHEDULE

1. a. Competitions are often held in schools. Suppose you are participating in a competition of your choice and some of your friends are observing your performance. Now make a guess and tell me what level of performance they would expect from you in that competition.

Answer:

- b. Now give your answer on this ladder.

Answer:

2. Everybody takes up some work after completing his studies. Would you please tell me which occupation you would like to take up after completing your studies?

Answer:

3. a. Let's suppose that you get the job of your choice. Now tell me what level of success your friends would expect from you in your chosen occupation.

Answer:

- b. Now indicate the level of expected success on this ladder.

Answer:

4. a. Suppose one of your teachers is acting as a judge for a competition in which you are one of the participants. Now make your best guess and tell me what level of performance your teacher would expect from you.

Answer:

- b. Now tell me the level of expected success on the ladder.

Answer:

5. a. Now I would like to know about your father's expectation from you regarding your success in the chosen occupation. What level of success would he expect from you?

Answer:

- b. Give me your father's expectation on the ladder.

Answer:

6. a. Generally speaking, what level of success would your teachers expect from you in the forthcoming examination?

Answer:

- b. Now give your answer on the ladder.

Answer:

7. a. Let's suppose that your father is amongst the audience observing your performance in a competition. Now tell me what level of success he would expect from you in the competition.

Answer:

- b. Please indicate your father's expected success from you on the ladder.

Answer:

8. a. Generally speaking, what level of success would your friends expect from you in the forthcoming examination?

Answer:

- b. Now give the success they expect from you, on the ladder.

Answer:

9. a. Normally, what level of success would your teachers expect from you in the chosen vocation that you named a short while ago?

Answer:

- b. Indicate your teachers' expectation from you on the ladder.

Answer:

10. a. Would you now tell me what level of success your father expects from you in the forthcoming examination?

Answer:

- b. Please indicate your response on the ladder.

Answer:

11. a. Suppose you are participating in a competition of your choice. Tell me what level of success you would expect to achieve in that competition.

Answer:

- b. Now indicate the level of expected success on the ladder.

Answer:

12. a. Let us assume that you get the profession of your choice. What level of success do you expect to attain in that profession?

Answer:

- b. Please express the level of your expected success on the ladder.

Answer:

13. a. Lastly, what level of success do you expect to get in the forthcoming examination?

Answer:

- b. Please give the level of your expected success on the ladder.

Answer:

14. What is your religion?

Answer:

APPENDIX 5

ACHIEVEMENT MOTIVATION INVENTORY ITEMS

1. A boy is sitting on a cot. He has a book in his hand. An almirah full of books is lying nearby.
 - i) He is preparing questions suggested by his teacher for the forthcoming examination.
 - ii) He is trying to find out the meaning of that word which no one in the class could explain.
 - iii) He is looking at the coloured picture given in a book.
 - iv) He is quickly doing the home task given by the teacher.
 - v) He is thinking about a new application of the principles given in a book.
 - vi) He is reading a story.
2. A boy is making a picture.
 - i) He is thinking whether to complete the picture or to leave it unfinished.
 - ii) He is practising to make pictures.
 - iii) He is making a picture to participate in the annual art competition to be held in the school.
 - iv) He is thinking whether he should colour the picture.
 - v) He is learning the art of making pictures.
 - vi) He is thinking that when he will have learned drawing well, then he would make beautiful pictures.
3. A boy is holding a model of an aeroplane and is looking at it.
 - i) He is thinking of becoming an engineer.
 - ii) He is guessing the price of the aeroplane.
 - iii) He is observing as to how the aeroplane has been made.
 - iv) He is carefully checking the aeroplane before demonstrating his flying skill.
 - v) He is waiting for his friend so that he can get the aeroplane started by him.
 - vi) He is thinking of repairing the damaged aeroplane.
4. Two boys are standing, facing the mountains.
 - i) They are enjoying the beauty of nature.
 - ii) They are planning to climb up to the highest peak of the mountain.
 - iii) They are studying the herbs available on the mountain.
 - iv) They have become tired after a lot of walking and are just relaxing.
 - v) They are thinking about the new techniques of mountaineering.
 - vi) They are thinking of writing a report after having inspected the mountainous region.
5. A farmer's son is ploughing the field.
 - i) He is contributing his share to make up the deficit of food in the country.
 - ii) He is thinking of sowing after he has ploughed the land.
 - iii) He is trying to get the maximum possible yield from his field.

- iv) He is ploughing the land to get sufficient food for himself and his family.
 - v) He is ploughing the field to sow seeds.
 - vi) He is using chemical fertilizers to make the land more productive.
6. A boy is doing something in the laboratory.
- i) He is thinking that he should discover some new thing.
 - ii) He is practising an experiment for the examination.
 - iii) He is clearing the instruments kept in the laboratory.
 - iv) He is busy in discovering new things.
 - v) He is doing an experiment in science.
 - vi) He is looking at instruments placed in the laboratory.
7. A man and a boy are sitting with a *tabla*.
- i) The boy is learning to play on the *tabla*.
 - ii) The boy is learning the tricks of the trade from his teacher in order to become a good artist or a good musician.
 - iii) They are wondering as to why other persons have not turned up so far.
 - iv) The boy is preparing for the examination in music.
 - v) The boy is absorbed in learning new music compositions from that man.
 - vi) They are playing on the *tabla* to entertain themselves.
8. Two boys are playing hockey.
- i) They are playing hockey to pass the evening.
 - ii) They are learning hockey from the instructor.
 - iii) They are practising hockey to regain the trophy lost by them in the last competition.
 - iv) They are playing for their amusement.
 - v) They are playing hockey to check whether the ground is suitable for playing a hockey match.
 - vi) They are preparing for the final hockey match.
9. A teacher and some boys are in the class.
- i) They are participating in a discussion competition on 'How to check the growing indiscipline in schools'.
 - ii) They are learning a new lesson from the teacher.
 - iii) They are getting a complicated problem solved by the teacher.
 - iv) They are taking part in a group discussion to evolve indigenous methods to solve the food problem.
 - v) They are talking with the teacher.
 - vi) They are learning a new formula in mathematics from their teacher.
10. A teacher is sitting in a chair. A boy is standing by his side.
- i) The boy is informing the teacher about the truants.
 - ii) That boy has just now developed a new thing and he is eager to show it to the teacher.
 - iii) The boy is standing beside the teacher to recite his lesson.
 - iv) The boy is standing there to hand over a letter from his father to the teacher.

- v) He is standing there to show the teacher the essay that he has prepared to submit for the essay competition.
 - vi) He is standing there to understand a problem from his teacher.
11. A boy is reading something.
- i) He is looking for the meaning of that word which nobody could tell in the class.
 - ii) He is reading a book of stories to pass the time.
 - iii) He is reading about new discoveries made in the different fields.
 - iv) He is preparing the lesson assigned to him by his teacher.
 - v) He is enjoying a book of film songs.
 - vi) He is preparing for some competitive examination.
12. The principal is giving something to a boy.
- i) He is presenting a certificate to that boy for keeping up the name of the school in the last competition.
 - ii) He is praising that boy for maintaining discipline in the class.
 - iii) He is giving some important instructions to that boy.
 - iv) He is giving a prize to the boy for his courageous act.
 - v) He is giving a booklet of rules and regulations to the boy for the forthcoming regional competition.
 - vi) He is giving the attendance register to the boy for taking attendance of the class in the absence of the class teacher.
13. Some boys are playing cricket.
- i) They are learning to play cricket.
 - ii) They are trying to improve their game.
 - iii) They are playing to pass their recess.
 - iv) They are practising the game.
 - v) They are preparing to take part in the annual school competition.
 - vi) They are playing an exhibition match to collect funds.
14. A boy is holding some arrows in his hand. There is a target-board placed at some distance.
- i) That boy is waiting for the end of the P.T. period, so that he can go home.
 - ii) He is learning the art of arrow-shooting.
 - iii) He is practising arrow-shooting to become a good arrow-shooter.
 - iv) He is trying to finish this game quickly so that he can play some other game.
 - v) He is thinking of different techniques of shooting.
 - vi) He is practising in order to get the first position in the arrow-shooting competition.
15. A doctor is sitting with a patient.
- i) He is talking to the patient.
 - ii) He is carefully examining the patient.
 - iii) The doctor has given an injection to the patient and now he is waiting for his fee.
 - iv) The doctor is prescribing the diet for him.

- v) The doctor is carefully listening to the patient so that he can diagnose his disease properly.
 - vi) The doctor is giving an injection to the patient to make him healthy.
16. A boy is sitting under a lamp. He has a book in his hand. .
- i) He is thinking of doing some great work after completing his studies.
 - ii) He is thinking that now he should start preparing for the examination.
 - iii) He is trying to write something in the book.
 - iv) He is preparing all the possible questions which can be asked in the examination, so that he may score the highest marks in the class.
 - v) He is turning the pages of the book and trying to find out that page on which the questions to be asked by the teacher on the following day is given.
 - vi) He is checking whether there is any name written on the book that he found on way back from school.
17. A boy is doing something with the help of a hammer and a chisel.
- i) He is making a model.
 - ii) He is trying to improve his skill in the craft.
 - iii) He is checking whether the hammer and chisel work properly.
 - vi) He is repairing the broken model.
 - v) He is trying to become a sculptor.
 - vi) By doing this he is getting physical exercise.
18. A boy is standing with a pen in his hand. He has a notebook.
- i) He will fill in the ink and write something on the note-book.
 - ii) He is thinking of writing an interesting story.
 - iii) He is imagining that he will become a writer.
 - iv) He is checking whether the pen writes properly.
 - v) He is thinking of the outlines for an essay for a competition.
 - vi) He is solving assigned questions on the note-book with the help of that pen.
19. Some persons are doing various types of work.
- i) They are discussing as to what they would do so that they can progress.
 - ii) They are busy in their respective tasks.
 - iii) They are working to earn money.
 - iv) They are thinking about various ways to march ahead on the path of progress.
 - v) They are doing their work.
 - vi) A man has to do something to earn his livelihood. These people are also doing some such work.
20. A boy is flying a kite.
- i) He is amusing himself.
 - ii) He is thinking as to how he should fly the kite so that he may win the kite-flying competition.
 - iii) He is wondering whether he should participate in the kite-flying competition on the following day.
 - iv) He has just bought the kite out of the money that he got from his mother and is now trying to fly it.

- v) He is thinking of becoming a good kite-flier so that he may compete with his companions.
- vi) He is thinking whether he should compete with the other kite-flier.

SCORING KEY FOR THE INVENTORY

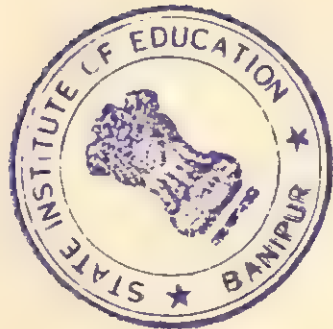
<i>Item No.</i>	<i>AR</i>	<i>TR</i>	<i>UR</i>
1	2,5	1,4	3,6
2	3,6	2,5	1,4
3	1,4	3,6	2,5
4	2,5	3,6	1,4
5	3,6	1,4	2,5
6	1,4	2,5	3,6
7	2,5	1,4	3,6
8	3,6	2,5	1,4
9	1,4	3,6	2,5
10	2,5	3,6	1,4
11	1,6	3,4	2,5
12	1,4	2,5	3,6
13	2,5	1,4	3,6
14	3,6	2,5	1,4
15	2,5	3,6	1,4
16	1,4	2,5	3,6
17	2,5	1,4	3,6
18	3,5	2,6	1,4
19	1,4	2,5	3,6
20	2,5	3,6	1,4
21	3,6	1,4	2,5
22	1,4	2,5	3,6

Note 1: The AMI consists of 22 items. Each item is followed by six responses of which two are achievement-related (AR), two are task-related (TR) and the rest are unrelated to achievement (UR). The numbers given against each item under AR, TR and UR in the scoring key show the nature of the numbered responses. For example, responses Nos. 2 and 5 out of six responses under Item 1 are AR responses to Item 1, and responses No. 1 and 4 are TR responses and responses 3 and 6 are UR responses. The response to any one item can be either AR or TR or UR.

21. The teacher is teaching in the class.

- i) The teacher is trying to complete the course.
- ii) He is teaching to earn his salary.

- iii) He is making a study of the effective methods of teaching.
 - iv) He is answering the questions put to him by the students.
 - v) He is punishing those students who have not done their work.
 - vi) He is making a difficult lesson easier by giving new examples.
22. Three boys are running a relay race.
- i) They are practising in order to improve their performance.
 - ii) They are learning the relay race during the games period.
 - iii) They are carrying out instructions.
 - iv) They are trying to surpass each other in the race.
 - v) They are demonstrating their skill.
 - vi) They are observing Sports Day.



APPENDIX 6

INVENTORY OF QUALITIES

Instructions

This Inventory has three parts: one each for qualities in your best friends, your most liked teacher and your father. Each part contains five pairs of qualities. You are required to select and check one quality in each pair. Remember that you have to check that one quality in each pair for which you like your friend, teacher or father.

Each quality is numbered. Put a tick mark (\checkmark) on the number of that quality which you like in your friend, teacher or father.

Remember you have to check one quality in each pair.

Qualities in an Intimate Friend

1

- a. He is good in studies.
- b. He defends me in quarrels with other boys.

2

- a. He helps me during examinations.
- b. He wants me to work independently.

3

- a. He always stands first in the class.
- b. He does not keep any secret from me.

4

- a. He likes me.
- b. He participates in school competitions and wins some prize or the other.

5

- a. He wants me to win great success in life.
- b. He refuses nothing to me.

Qualities of a Popular Teacher

1

- a. He teaches us very well.
- b. He is very affectionate to his pupils.

2

- a. He wants me to participate in school activities and demonstrate the best of skill.
- b. He pays equal attention to all.

3

- a. In case we don't follow, he makes us understand again and again.
- b. He wants all of us to secure good marks.

4

- a. He encourages the boys to ask questions in class.
- b. He is a simple man with a pleasing personality.

5

- a. He helps the poor and weak students.
- b. He wants me to lead in all subjects.

Qualities of a Father

1

- a. He wants to provide us the highest possible education.
- b. He loves us very much.

2

- a. He gives us everything we demand.
- b. He encourages me in every type of work.

3

- a. He helps me in my school work.
- b. He wants me to become a great man.

4

- a. He provides me every possible comfort.
- b. He wants me to work independently.

5

- a. He wants me to get success by virtue of my own efforts.
- b. He never scolds us.

APPENDIX 7

ILLUSTRATIVE SIX-STORY RECORDS FROM TEN PUPILS¹

The pictures used for the six stories in this appendix were B4, D4, A5, A3, C2 and B2, in that order. These pictures are described in Appendix 3. In recording these stories a separate paragraph is used for the response to each of the four questions that were asked in order to insure complete coverage of a plot. These four sets of questions were:

1. What is happening? Who are the persons?
2. What has led up to this situation—that is, what has happened in the past?
3. What is being thought; what is wanted? By whom?
4. What will happen? What will be done?

PUPIL No. 1

Story 1

"In the picture, a doctor is asking something from a patient. A doctor and a patient are here. The patient is telling about himself.

"Before this, a person got ill. He may have eaten some dirty things.

"The doctor is thinking of giving some medicine to him. The patient is thinking that he should be all right soon.

"Now the doctor will give medicine to him and the patient will drink it. The patient will be all right."

Story 2

"In the picture two *tabla* players are sitting. One of them is a 'tabla player' and another is a drum-beater. Both of them are beating drums.

"Before that they have made all preparations because in that way the people will be attracted towards them.

"The *tabla* player and the drum-beater desire that the music should be good. Both of them are thinking that. They are to earn a lot of money today.

"Now they will start music and will earn money".

Story 3

"In the picture, one boy is sitting on a cot and is reading something. Here are a boy, a photograph of somebody, a window, and books lying on a table.

"Before this, the boy picked up the books because he is to read.

"The boy is thinking of memorizing that lesson and desires that he may get through in the examination.

"The boy will take the examination and will get through".

Story 4

"In the picture, the boy is looking towards a pen. He is quite short. In the picture, there is a book, an inkpot and a pen.

"Before this, the boy has collected all the things, because he wants to write something new.

¹ All stories were written in Hindi by the subjects.

"The boy is thinking that now the pen should be picked up. He desires that now he should start writing.

"Now he will pick up the pen and will start writing."

Story 5

"In the picture, cricket is being played. One boy is batting and another is bowling. They are all players of cricket.

"Before this, they have collected all the material and have numbered themselves for playing.

"The bowler is thinking that he should be out soon. The batsman is thinking that he will make a four. The wicket-keeper is thinking that he may catch the ball and he may be out.

"Now the bowler will bowl and the batsman will be out or make a four or the wicket-keeper will catch the ball."

Story 6

"In the picture, a person is painting scenery. In the picture there are colours, a brush and a boy.

"Before this, the person has collected all the material because he was to prepare beautiful picture of scenery.

"The person is thinking whether the picture is being prepared well or not. The person desires that the picture may be good.

"The picture will be ready and the boy will show that to his friends and people at home. He will then keep the things at their proper place."

PUPIL No. 2

Story 1

"A doctor is examining a patient. The patient, pointing towards the heart, is saying that he is having pain there; so the doctor is examining his heart.

"The doctor examined the patient attentively to find out the disease, from which he is suffering. This has happened because he may have done some wrong thing.

"The doctor wants to give good medicine and the patient wants to recover soon, so that the pain may stop.

"Now the doctor will give a suitable medicine to him. The patient will recover. If it will take time for the patient to recover, then he will take rest."

Story 2

"Two men, a woman and a boy are playing on the *tabla*. The woman can better play on the *tabla* than the boy who is still learning it.

"Because the woman can play on the *tabla* well, so the boy is learning it from her.

"The woman wishes to teach *tabla*-playing properly to the boy. The boy wishes to learn *tabla*-playing even better than the teacher.

"The woman will go on teaching *tabla*-playing and the boy will go on learning *tabla*-playing keenly."

Story 3

"Here are a woman and a boy. Books are lying near the feet of the boy. He is studying.

"But in a short time his mother came from that side and she scolded the boy for keeping the books scattered all over on the floor. It is possible that before this the boy might have had examinations and his books are lying on the floor.

"Mother thinks that her son should do good work and not bad work. The boy wants that he should study wholeheartedly.

"Now, as asked to do by his mother, the boy will pick up the books and will work according to her directions."

Story 4

"Here are a boy, a pen and an inkpot. The boy is telling somebody about the pen by pointing towards it with his finger.

"That 'I have filled in excessive ink in it and that I am putting it in by keeping it up'. 'The boy wants that the pen may be repaired soon so that he may do work.

"But sorry, his pen is not working and now he cannot work. But he will get a new pen by telling his father and will do his work."

Story 5

"The boys are playing a game. They are playing cricket. But their material is not proper. The boys are tall and bats are small.

"Therefore they are not able to play properly, because their material is not proper. Some are tall, some are short, the bat is small.

"All wish that the material should be according to their sizes. The tall boy wants that the bat should be big and the short boy wants that it should remain as it is.

"Now the problem is that he should bring a big bat and this they can only do if they collect a subscription and buy a new bat."

Story 6

"Here a man is making a picture. He has depicted the sun, a cottage, etc., in this picture.

"One-day he thought of becoming a painter; so he is practising making pictures.

"Now he wants to make good pictures to become a painter.

"Now he will go on working attentively and will become a painter. But he has decided that he will not leave any picture half-finished."

PUPIL No. 3

Story 1

"In the picture there are a doctor and a patient. The doctor is feeling the pulse of the patient.

"Before this, the patient had taken some dirty things; so he had become sick.

"The doctor is examining him. The patient is telling him about his illness, and he wants medicine.

"Now the doctor will give him medicine. The patient will take it. After that the doctor will go."

Story 2

"The teacher is teaching *tabla*-playing to the pupil. One of them is a teacher and another is a pupil.

"Before, that, the pupil had forgotten something; so teacher is telling him the same. This has happened because the pupil is weak.

"The teacher is thinking as to what type of pupil he has. He wishes to make the pupil an expert in *tabla*-playing.

"The teacher will teach him with love and the pupil will listen to him and will start learning."

Story 3

"The student is reading a book. Some books are scattered on the floor. He is a student.

"Before this, the student has never learnt his lesson because he used to live in bad company.

"The student is thinking about his examination—whether or not he will get through. He wants to get a 'first' in the examination."

"The student will study whole-heartedly and will get through. In future he will work from the very beginning of the year."

Story 4

"A dwarf is standing with a big pen, an inkpot and a book. He is a small-statured person, who is called a dwarf.

"The dwarf has come to this country for the first time. Because he has come from a country of dwarfs, he has never seen such a big thing before.

"The dwarf wants to know about it. He wants to write with it on the book after filling ink in it.

"He will not be able to pick it up and go. He will leave it and will say that it is useless."

Story 5

"Four boys are playing a game called cricket. All the four are school children and are playing after returning from school.

"Before that they had gone to school for studying. Now they have returned. After studies they want to entertain/amuse themselves. Therefore they are playing.

"The batsman wants to hit the ball hard and the other wants to catch the ball.

"He will hit the ball hard but other player will catch the ball. After that the game will stop."

Story 6

"A man is making a picture. He is a painter.

"Before this, the painter had mixed up colours because he wants to make a picture.

"The painter wants to make a picture of a beautiful village.

"The painter will complete the picture and will sell that to the king. He will get a big prize."

PUPIL No. 4

Story 1

"There are two persons. One of them is a doctor who is examining the patient. He is feeling the pulse of the patient. Medicines are kept near the patient. He is feeling the pulse of the patient to know how fast it is beating in a minute.

"Before this, the patient was sick. Now the doctor will give him medicine.

"The doctor is feeling the pulse.

"Now the patient will recover".

Story 2

"A man is sitting, and a boy sitting near him is playing on the *tabla*

"Before this, there had been a music-and-dance programme.

"The *tabla* players are listening the tune of the song.

"Now there will be a music-and-dance programme."

Story 3

"A boys is reading a book and some books are lying near him.

"Before this there may have been a quarrel because he may not be studying.

"The boy is thinking of leaving studies.

"His life will be ruined and in future he will have to work like a labourer."

Story 4

"In this picture a boy is standing. He is a boy.

"Before this, he has got up to fill in ink.

"He is thinking to fill in ink.

"Now he will write."

Story 5

"A boy is throwing a ball and the other boy is ready to play with the ball. They are players.

"Before this, the ball had been thrown. They are playing. Therefore....

"The bowler wants to bring down the three sticks behind the other boy.

"The boy who is playing will hit the ball and will save by running."

Story 6

"A man is making a picture. He is an artist.

"Before this, he has made the pictures of a man, a mountain and the sun. These are for sale.

"He is thinking of making very very beautiful pictures. He wants to make them beautiful.

"Now he will sell them and earn money and will make more pictures."

PUPIL No. 5

Story 1

"The doctor is examining the patient. One is the patient and other is the doctor.

"Before this, the man fell ill. He had eaten some wrong type of thing.

"The doctor is thinking as to whether or not he can be saved. The doctor wants to save the patient.

"The doctor will examine the patient. He will give medicine to the patient".

Story 2

"One man is teaching *tabla*-playing and another is learning. They are men, singers and learners.

"Before this, the man who teaches *tabla*-playing would have come. He was to teach them.

"The teacher is thinking whether or not he is playing the *tabla* properly. He desires that he should learn quickly.

"If he will learn this, then the teacher will start a new chapter. If he will not learn, then he will teach him again."

Story 3

"A child is reading a book. He is a student.

"Before this, somebody had thrown his books down and some books are torn.

"The child is thinking that he will get a new book and it can be pasted. He wants that the old books may be made all right.

"Now he will be beaten. He will try to paste the torn books."

Story 4

"There is a big pen. Before this a child is standing and there is also a big book and an inkpot.

"Before this, the child was not here. Somebody has put it here now.

"The child is thinking: 'How has it become so big and who writes with it?' He wants to write with it and wants to read the book. He wants to take ink from the inkpot.

"Now he will try to get it, but his labour will go waste because he cannot even pick up the same."

Story 5

"A few persons are playing cricket. They are players.

"Before this, the bowler had thrown the ball and the batsman hit the ball and because of the hit the ball went away.

"The fielder is thinking that the player who is running will catch the ball. They want that they may catch it.

"Now he will catch that and the player will be out and another player will play, and the other fielders will pat him."

Story 6

"A child is doing drawing. He is making a scenery. He is a teacher.

"Before this he had done the drawing with pencil. Then he filled in colours because that makes it beautiful.

"The boy is thinking that if it is prepared nicely then he will get 'Good' from the teacher. He wants 'Good'.

"After that he will put away the things and show the drawing to the teacher. The teacher will give him 'Good'."

PUPIL No. 6

Story 1

"In the picture a person is seeing a patient. One is a doctor and the other is a patient.

"Before this, he was ill because he did not care for his health.

"The doctor is thinking about the medicine which may be given to the patient. The patient wishes to recover soon.

"Now, after giving medicine, the doctor will go and his parents will look after him."

Story 2

"In the picture a man and woman are playing on the *tabla*. They show their art.

"Before this, they became *tabla* players because they wanted to earn their livelihood.

"They are thinking that they should get more and more money. They want money.

"Now after playing on the *tabla* and getting money they will go and they will play on the *tabla* somewhere else."

Story 3

"A boy is standing with a book in his hand. His mother is looking on by standing behind him. Books are scattered around him. They are members of the family.

"Before this he had come in this room, because he was to make his future.

"His mother was also thinking whether or not the boy is studying.

"Mother will go and thereafter the boy will also go after studying. The boy will again come and study."

Story 4

"A boy is trying to hold a pen. A notebook and ink are lying near him.

"Before this, the boy had come there because he was to do his school work.

"The boy is thinking that he will do the work quickly. He wants to go early for play after completing his work.

"Now the boy will do school work. Thereafter he will remember his lesson."

Story 5

"Boys are playing cricket. They are small boys.

"Before this, they had come and had chosen their partners, because they were to amuse themselves.

"The boys who are fielding are thinking they will out the players soon. They want to out the maximum players.

"Now the boys who were fielding will play and thereafter they will be out."

Story 6

"A boy is making a picture with colours. He is a painter.

"Before this, he had brought the material, because he was to prepare pictures.

"The boy is thinking that the picture prepared by him should be very good. He wants to get 'Very Good' on that.

"Now he will make the picture and after putting away the things he will go for his entertainment."

PUPIL No. 7

Story 1

"In the picture there are a doctor and a patient. The doctor is asking about the health of the patient. The patient is telling something about the pain which he is having.

"Before this, the patient was having some pain and his heart was beating fast.

"The doctor is wondering from what disease the patient is suffering and what type of pain he is having.

"Now the patient will be given medicine to drink."

Story 2

"In the picture, there are two persons and they are talking about the *Tabla*—whether or not it is alright.

"Before this the *tabla* player had played on the *tabla*, because before that some *qawwalies* were going on.

"They are thinking whether or not the *tabla* is being played properly and people like it.

"Now songs will be sung and thereafter the *tabla* players will go and the programme will end."

Story 3

"Here is a boy and a book is in his hand. He is looking towards a photo.

"Before this, the boy was studying and was memorizing something because he is having an examination.

"The boy was thinking: 'Now I will get through in the examination'. He wished to get through the examination.

"Now the boy will stop studying and will read one book from the books lying before him."

Story 4

"The pen is lying in the room and the boy is painting with that pen. Here is a boy and a bottle.

"Before this boy was not painting with the pen because he did not require it.

"The boy is thinking that he will get the pen and will write with that. He wants to have the pen.

"Now the boy will take the pen and will write with it."

Story 5

"There are five boys in the picture. They are playing cricket. One boy is bowling and one is playing. Two persons are fielding.

"Before that, the boys fixed the wickets, and divided into partners because they were to play.

"The player is thinking that he will win and the bowler is thinking that he will win. They want to win.

"Now one team will win and after that all will go home."

Story 6

"There are two women in the picture and there are bouquets and a cottage and the sun has risen. The women are pointing towards the cottage.

"Before this, they were going somewhere. Now because they have shown their house to a traveller.

"They are thinking that this is my house. The woman wants that she may get pen.

"Now the woman will go to her house and will give the pen to her."

Story 1

"A man is sitting near the cot of another man. The man who is lying on the cot is sick and the other man is his father.

"That man has met with an accident. When this wounded man was crossing the road a van dashed against him."

Story 2

"There are two men, who are playing on an instrument. They are musicians.

"When they were invited they had promised to give a music programme there.

"Now they are thinking to get rid of those persons. Now they want to go."

Story 3

"A boy while sitting is thinking something. He is sitting on a bench. He is a student.

"He has failed in the examination because he did not study.

"Now he is thinking how he should study. He wants to get through in the examination."

"Now he will study. Now he will study sincerely."

Story 4

"The student is picking up his pen and will start writing. His name is Mohan.

"Before this, his father had beaten him for not studying.

"He is thinking about his future. He wishes to go ahead in his studies.

"He will study. He will show his father that he is a hardworking boy."

Story 5

"A cricket match is being played. They are students. They are players.

"Before this, they were sitting in the class because they were to study.

"The goalkeeper is thinking that there may not be any goal. He wants to save the goal. They want to win the match.

"They will win the match. They will get a prize."

Story 6

"He is an artist, who is making a picture of a mountain.

"Before this, he was a teacher in a school and had passed the examination.

"He is trying to make it a beautiful picture so that others may praise it after seeing it.

"Now he will send it to the press for printing in a book and people will feel happy after seeing it."

PUPIL No. 9

Story 1

"In the picture there are a doctor and a patient. The doctor is examining the patient.

"Before this the patient was. . . His condition was bad.

"The doctor is thinking what should be done for this patient.

"If the doctor is unable to diagnose the disease they will go."

Story 2

"*Tabla* players are playing on the *tabla*.

"Before this, they were learning *tabla*-playing because they were fond of playing on the *tabla*.

"Both of them are thinking in their mind how they would play on the *tabla*.

"Now both of them will play on their *tablas* and will play different kinds of tunes."

Story 3

"A young student is studying. He is a student.

"He wanted to study because he was fond of studies.

"That boy is thinking in his mind that the examination has come very near now, and how will he study?

"After some days the examination of the student will start. Thereafter he will study hard."

Story 4

"A short boy while standing is looking at a pen. A small inkpot is lying near him.

"Before this that child had seen that.

"The child is wondering how he should get that pen to write with.

"The child after picking up the pen will start writing."

Story 5

"In the picture there are a few players who are amusing themselves by playing cricket.

"These players are fond of playing cricket. One player is throwing the ball towards other.

"The other players are thinking what should be done now, how the players should stand.

"After that the players will start playing the game."

Story 6

"In the picture a student is painting a cottage. In the picture there is a tin of colours and a few brushes.

"Before that, he was painting some other place to decorate the house.

"Now the student is thinking what should be painted now, and how painting should be done.

"Now the student will paint to decorate the house."

PUPIL No. 10

Story 1

"In the picture there is a scene from a hospital. Here a doctor is examining a patient, who is a soldier.

"Before this, a wounded soldier has been brought to the hospital.

"The soldier is thinking that after getting well soon he should go to the peaks of the Himalayas to guard his motherland.

"Now the doctor will...."

Story 2

"Two men are playing on the *tabla*. Both of them are *tabla* players.

"Before this they were playing on the *tabla* because good *tabla*-playing needs practising.

"Both the persons wish to play well on the *tabla* and earn a reputation.

"Now both of them will play on the *tabla*, and their reputation...."

Story 3

"A student is studying. He....

"Before this, some books had fallen down so he does not want to read those books.

"The student after reading the book is thinking over it.

"This child, after studies, will become wise and will serve his country."

Story 4

"In the picture a short boy is shown holding a pen and the book is lying near by.

"Before this, the child after taking the notebook, the book and the pen, was preparing himself to write.

Now the boy will write something in the book and will fulfill his ambition."

Story 5

"Some players are playing.

"Before this also, the players were playing and players want to out the players. Because all want to win.

"The player is thinking that he will make the maximum runs and the bowler is thinking to out the maximum players.

"Now one team will win out of the two teams."

Story 6

"An artist is filling the colours in a picture.

"Before this, the painter had prepared a picture because he is poor and wants to earn his livelihood from it; or this is his hobby.

"The painter is thinking to prepare the picture and earn a reputation.

"In order to fulfill his aim he will try to make the picture very beautiful."

SCORING FOR THE ILLUSTRATIVE STORIES*

Pupil No.	Story No.	UI	TI	AI	N	I+	I?	I--	Ga+	Ga-	Bp	Bw	Mup	G+	G-	Th	n Ach Score
1.	1	-1	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0
	2		0		1	1											3
	3																0
	4		0														0
	5		0														0
	6			1	1	1										1	4
Total				2	2	2										1	7
2.	1			1	1	1										1	4
	2			1	1	1	1									1	4
	3			1	1	1										1	4
	4		0			1											0
	5	-1			1	1										1	-1
	6	-1		4	4	3	1									4	15
Total																	
3.	1		0														0
	2			1	1											1	3
	3			1	1	1										1	4
	4	-1															-1
	5	-1															-1
	6			1	1	1								1		1	5
Total				3	3	2								1		3	10

* The Scoring System 'C', developed by Smith and Feld, was followed in scoring these stories.

APPENDIX 8

RATING SCALE: SOCIO-ECONOMIC BACKGROUND OF THE STUDENT POPULATION

(Scale on which the schools were rated by the respective Zonal Inspector of Schools)

The following is a five-point scale on which the schools were rated in respect of the socio-economic background of the student population. The scale is as follows:

Groups *

- | | | |
|----|-------------|---|
| A. | HIGH | A school in which the majority of the students come from the richer sections of the society, e.g., business men and high Government officials, professional people like doctors of standing, lawyers, etc. (The monthly family income may be about a thousand rupees or above). |
| B. | HIGH MIDDLE | A school with a student population falling between HIGH and MIDDLE groups. |
| C. | MIDDLE | A school in which the majority of the students come from middle-class families, such as the families of government employees, teachers, petty business men, etc. |
| D. | LOW MIDDLE | A school with a student population falling between MIDDLE and LOW groups. |
| E. | LOW | A school in which the majority of the students come from the poorer sections of the society, such as peons, industrial labourers, daily wage earners, etc. (The monthly family income may be below one hundred rupees). |

* Groups A and B were combined to form High SES Schools, C and D to form Middle SES Schools and Group E remained as Low SES schools.

STUDY TWO

EXPERIMENTING WITH MOTIVATION TRAINING FOR EDUCATIONAL GROWTH

CHAPTER I

Introduction

THIS study concerns achievement motivation training and its impact on pupil performance. The present study sought to test the effect on academic performance of two motivation training programmes, one designed to increase the concern to achieve and the other designed to boost aspirations in high school boys. The content of the achievement motivation training programmes derives from researches on Achievement motivation by McClelland and associates (McClelland *et al.*, 1953; Atkinson, 1958; McClelland, 1961) and our own research reported earlier in Study One. The content of the second programme derives from research on teachers' influence on pupil aspirations and performance (Zander *et al.*, 1961); effects of teacher comments on pupil performance (Page, 1958, 1963); and pupil expectations and their actual performance (Goldstein, 1962; Orne, 1962; Rosenthal, 1963).

Attempts to increase the concern to achieve through a counselling programme (Burris, 1961) and by a training camp (Kolb, 1965) were found to enhance students' academic performance. The present study used teachers, trained in programmes designed to increase their concern to achieve, as agents of similarly designed changes in their pupils. The programme designed for the pupils (Class IX boys in the science group) were carried out in the specified manner in the respective classrooms by the teachers who were trained earlier for this purpose. The experimenters had little direct contact with the subjects; they operated in the classroom through the teachers. The study therefore tested the effects of the classroom programmes, designed to enhance concern for achievement and to boost aspirations, which were carried out by regular teachers.

PROCEDURE

Setting

One science section in Class IX of each of eight higher secondary schools at Jaipur (of which one was later dropped) were chosen for the experiment. The Director of Education, Rajasthan, assured the investigators all help in carrying out the programmes. Eleven teachers from three experimental schools attended a 10-day residential course in Achievement Motivation Training (AMT) at Ajmer. The course was designed and conducted, following the propositions and activities proposed

by McClelland (1965). Fourteen teachers from four experimental schools, of which seven teachers from two experimental schools had earlier attended the AMT, attended a two-day Aspirations Boosting Training (ABT) course. Some details of the training courses are given in Chapter 2.

Experimental Design

Five schools (E₂, E₃, E₄, E₅, E₆) were used as experimental schools and two were retained as control schools (C₁, C₂). Boys in E₂ were taught A Brief Course in Achievement Motivation (T₁) by their teachers who had been trained for it. The boys in E₅ and E₆ received a programme designed to boost their expectations (T₂) by their teachers who were trained for this task. Boys in E₃ and E₄ got both T₁ and T₂ from their teachers who had received both the AMI and ABT. The treatments ran from the beginning of November 1965 to the end of February 1966. The experimental design is given in Chart 1.

Subjects

The schools were selected on the basis of their results at the Higher Secondary School Examination. They were all average-achieving schools. The inspector of schools concerned also rated the selected schools as average-achieving. Two of the experimental and one of the control schools were government schools and the rest were private, aided schools. All the schools followed the curriculum prescribed by the Board of Secondary Education and were governed by the same rules and regulations. There were in all 290 Ss (all Class IX boys in the science group): 40 from E₂; 71 from E₃ and E₄; 93 from E₅ and E₆; and 86 from the control schools (C₁ and C₂). The Ss showed a mean score of 39.39, with the median at 39.40 and SD of 6.29, on a group test of verbal intelligence (Mehta, 1962). E₂, E₃, E₅, E₆ and C₂ were comparable on intelligence. These schools showed higher intelligence scores than E₄ and C₁ ($F = 2.45$; $P < .05$) which were comparable with each other.

CLASSROOM EXPERIMENTAL PROGRAMME

A Brief Course in Achievement Motivation formed the experimental Treatment 1 (T₁). It consisted of eleven items spread over four months. Four class periods were set apart in the regular weekly time-table for this course. Regular instructional material was supplied to the teachers to carry out this programme. The project staff paid regular visits to Jaipur to supervise and help teachers in carrying out the programme.

Treatment 2 (T_2) consisted of four classroom tests given by the respective subject teachers, one each month in physics, chemistry, mathematics, Hindi and English. The Ss set a goal for themselves after each test. They were also given feedback on the psychological and achievement tests which were given to them before the treatment started. A summary of the instructional material is given in Chapter 3.

1. *Pre-tests:* A test of insight consisting of six TAT type pictures, a verbal group test of intelligence, and achievement tests in chemistry, mathematics and physics were given in the second week of October, 1965. The achievement tests were semi-standardized by the Department of Evaluation and Examination of the National Council of Educational Research and Training for the Board of Secondary Education, Rajasthan.
2. *Post-tests:* The test of insight and the achievement tests in physics, chemistry and mathematics were again given in the last week of February 1966.

The above tests were given in the order in which they are listed to all Ss in experimental and control schools. Besides, data on social class were collected in the beginning of the programme. The marks obtained by the Ss at their respective school annual examinations (April 1966) were collected and used for the follow-up analyses.

HYPOTHESES TESTED IN THE EXPERIMENT

The experimental treatments were administered to the concerned classes with the specific objectives mentioned in Chapter 3. It was hoped that the attainment of these objectives would have an impact on the pupils' behaviour as well as on their academic performance. The following specific hypotheses were tested in the experiment:

Hypotheses

- 1.1 The boys in E2 (recipients of T_1) would show greater academic performance (at the end of the programme and later) than boys in the control schools.
- 1.2 The boys in E2 would show greater academic performance than those in schools E5 and E6 (at the end of the programme and later).
- 2.1 The boys in E5 and E6 would show greater academic performance than those in the control schools.
- 3.1 The boys in E3 and E4 (recipients of both T_1 and T_2) would show greater academic performance than those in the control schools.

- 3.2 The boys in E₃ and E₄ would show greater academic performance than those in E₂.
- 3.3 The boys in E₃ and E₄ would show greater academic performance than those in E₅ and E₆.

CHART 1

EXPERIMENTAL DESIGN FOR TRAINING FOR THE ACHIEVEMENT MOTIVE IN SECONDARY SCHOOL TEACHERS AND BOYS

<i>Class of Boys</i> <i>N = 45 each</i>	<i>Measure</i>	<i>Treatment 1</i> (<i>T1 and T2 would be con-</i> <i>current</i>)	<i>Treatment 2</i>	<i>Measure</i>
1	2	3	4	5
Control (C1 and C2)	<i>n</i> Ach and achievement tests.	—	—	Same as in Col. 2
E1 and E2	<i>n</i> Ach and achievement tests.	Boys work with teachers trained in coding their own stories for <i>n</i> Ach.	—	Same as in Col. 2.
E3 and E4	<i>n</i> Ach and achievement tests.	Same as E1 and E2	Boys receive a designed boosting programme from teachers who have been trained for it.	Same as in Col. 2.
E5 and E6	<i>n</i> Ach and achievement tests.	—	Same as E3 and E4	Same as in Col. 2.

RESULTS

The very nature of the experiment placed certain limitations on the study. The schools did not cover the same amount of curriculum during the period of experimentation. The teachers, in spite of the training, had their natural differences. The post-treatment achievement tests were therefore not likely to show strictly comparable results. Further, the boys came from varying home backgrounds; such differences and limitations were likely to affect the pupils' school performance. The pre-treatment tests were given in October 1965, and the post-tests in the last week of February 1966. The school annual examinations were held in the last week of April 1966. The relevant results of analyses of the marks obtained at the above tests are reported and discussed in Chapter 4.

Motivation Training*

THE training-course design followed the general design of the total experimental programme as described in Chapter 1. Three experimental treatments were given to five groups of Class IX boys. The teachers concerned were trained in two groups in two different courses: one on Achievement Motivation, and another on Aspirations Boosting.

OBJECTIVE OF THE TRAINING COURSE

This was a ten-day course planned for a small group of selected secondary school teachers. The following were the general objectives of this course:

1. To raise the teachers' level of *n* Ach in each of the components of *n* Ach, particularly the sub-categories with negative tone.
2. To train the teachers with a view to help them to create a climate of warmth and support in their classrooms.
3. To raise the teachers' 'hope of success' in various school programmes.

SELECTION OF SCHOOLS AND TEACHERS

Seven comparable secondary schools were involved in the experiments, five as experimental schools and two as control schools. Out of the experimental schools, three received the experimental programme on Achievement Motivation. The teachers for physics, chemistry, mathematics, English and Hindi, teaching the selected section of Class IX attended a 10-day training course.

The local sponsorship

The Department of Education, Rajasthan, agreed to sponsor the experiments as their own. The Director of Education sent round a detailed circular to the selected schools. The Department requested

* A full report on Motivation Training for Educational Development is available from the Department of Psychological Foundations, National Institute of Education, Mehrauli Road, New Delhi-16.

the teachers and the principals of the selected schools to meet the research staff. Some officials of the Department, including the Director and the Additional Director, also participated in this meeting, at which the details of the training courses and the experimental programme were explained. The meeting enabled the faculty to establish the first personal contact with the educators who were to become their partners in this cooperative research on motivation training.

The programme was formally inaugurated by the State Education Minister, at Jaipur, on 7 October 1965. The inauguration was largely attended by teachers, principals and officials of the Department of Education.

The above meetings were organized to promote readiness in teachers and others for the training course and the school experimental programme. They helped in creating an atmosphere of prestige and urgency for the programme.

THE COURSE

The location

The course was held at the Tikam Chand Jain Higher Secondary School, Ajmer, from 14 to 23 October, 1965. The trainees stayed at the Lodha Dharamshala, situated just in front of the school, which provided good physical facilities. The course was held away from Jaipur to enable the trainees to devote all their time and attention to it. The course was inaugurated by the Director of Education, Rajasthan, who told the trainees that they were to undergo a rather unusual course, the first of its kind in the country.

Trainees' perception of the course

The pre-training activities helped the trainees to perceive the course clearly. This was revealed in the essays on 'Why Am I Here' written by them in the first session of the course.

Who Am I

Immediately after the inauguration, the trainees took the test of insight (Pictures B4, D4, A5, A3, C2 and B2 given in Appendix 3 to Study One) and wrote essays on 'Who Am I' and 'Why Am I Here'. These instruments set the tone for the course. The trainees began to realize that the programme of the course was different from the other courses they had earlier attended. On the following day they were told about the

NCERT research project on achievement motivation and about the role of the training course in the total programme. They were further told about some similar research activities in other countries. The trainees then started a session on 'Who Am I'. This was initiated by one of the faculty members. In the beginning the trainees were hesitant to speak about themselves openly. Initially, they resisted, saying that they had already written out their essays on 'Who Am I'. However, as one or two persons spoke, a general warming up was seen. The session then lasted for about four hours during which time everybody, including the faculty, spoke on who they were. The programme aimed at enabling the participants to think about themselves. This was considered essential for self-development. The programme further brought home to the participants the difference between the present training course and other courses which they might have attended earlier.

On the third day, some time was devoted to discussing the relationship between values and motives and the social origin of achievement motivation. The trainees' role-played in a game in the following family situation and observed how parents tend to discourage or encourage their children in their activities. The roles were: a psychologist, a child of 14 years, a father and a mother.

A psychologist visits a home to test the intelligence of the child there with the help of some blocks. He tells the parents that the child is required to put the blocks one over the other, blindfolded. He further tells them that children of their son's age, on an average, can arrange 9 blocks. He then asks them to set a goal (number of blocks) for their child. The child tries the game during which the parents are allowed to talk to him without actually helping him. The child might fail to achieve or might achieve or surpass the goal set by them for him. He plays the game three times,

The rest of the group was observing the behaviour of the parents and the child. Their observations were later discussed. The group asked questions of the role-players. The relevant observations were related, by the instructor, to some of our cultural values. The participants' attention was drawn to the predominant role of punishment, both in Indian homes and in families, in dealing with children.

Practice in coding stories

After a preliminary discussion, the group moved on to learn the method of scoring stories for the achievement motive. The criteria for coding achievement imagery and the various sub-categories (McClelland *et al.*, 1953) were thoroughly learnt, point by point. The group then

scored two sets of stories. After coding practice stories, they scored their own stories which were written on the first day of the training course.

Educational games

The following two educational games were played individually by each participant. These games were used to teach the trainees the concept of risk-taking and its relation with *n* Achievement.

Risk-taking Game I. Alexander's Pass Along Test of Intelligence was converted into a risk-taking game by asking the subject to select that card which he would like to try in the first instance. Four trials were given. At the end of each trial, he was asked to state which card he would like to try next. The following instructions were used for this game.

Here are 8 cards which are arranged in the order of their difficulty. Card No. 1 is rather simple and Card No. 9 is quite difficult. I shall work with Card No. 1 to demonstrate the procedure to play this game. (Card No. 1 is then done in front of the subject).

You will be given four trials. The score in each trial is the number of the card you work with, i.e., the score for Card No. 1 is 1 and for Card No. 2 is 2, and so on. You get the given score only if you can make the given pattern within the allotted time. Your score will be the total of the four sub-scores obtained in the four trials. Now tell me which card you would like to try for the first trial.

Risk-taking Game II. A target-hitting toy was used as the second game with the following instructions:

This is a target-hitting game. There are eight pins and a target-fixed. As you see, the inner circle of this target-field carries more points and the outer circle, less points. Within these areas, each target is assigned a separate score-point. You will be given three trials to play the game. For each trial you have to tell me how many of the eight pins you hope would hit the target-field, and how many points you hope to score. Your total score will be the aggregate of the points obtained by you in all the three trials.

Classroom interaction

Some time towards the middle of the training course, the group heard and discussed some points relating to the dynamics of classroom groups. They learnt the Flanders (1960) interaction categories and the method of observing and recording classroom behaviour with the help of several brief role-plays and a tape-recorded classroom lesson.

Sensitivity session

Somewhere in the middle of the training course, half a day was devoted to a sensitivity session. The session proved useful in further 'opening up' the participants. They took it up as a continuation of 'Who Am I'.

More about n Achievement

Towards the close of the training course the participants heard about and discussed the characteristics found in persons with high *n Ach*. They then tried to relate these characteristics to success in their profession.

The test of insight again and some more instruments

The participants once again wrote stories in response to the TAT type pictures. Here they tried deliberately to create as many sub-categories as they could in their stories. The scores obtained by the participants in the first and the second test of insight (*i.e.*, on stories written in response to TAT type pictures) are summarized in Table 1 and the details are shown in Appendix 1. As was expected, each one of them improved his scores.

Achievement plans and goal inventory

The participants filled out questionnaires pertaining to the achievement plans, and significant life experiences and life goals. These were used as training devices to stimulate them to think about their interests and ambitions and to promote in them some commitment to goals. Some participants initially resisted these inventories, thinking that these resembled their service confidential reports. But as these were discussed, point by point in the classroom, and individually, they began to understand. It was recalled later in the evaluation that each one of them found the inventories very useful.

The school programme

Half-a-day was devoted to discussing the school experimental programme which the trainees had to carry out after their training. The participants suggested several things by way of practical implementation of the programme.

There was a film show every evening, and sometimes in the afternoon, during the course. Frequent discussions took place on these films during the various items of the course.

Evaluation

The participants continuously evaluated the course. Each day's activities were evaluated at the end of the day on a proforma. The responses were got analysed by the trainees themselves. The evaluation and suggestions were the feedback. The programme, in fact, started each day with this kind of feedback from the previous day. On the basis of the feedback, necessary adjustments were made in the programme. The day-to-day evaluation is shown in Figures 2.1 to 2.5.

ACHIEVEMENT MOTIVE IN HIGH SCHOOL BOYS

HOW DID THE PARTICIPANTS
FEEL IN THE GROUP?

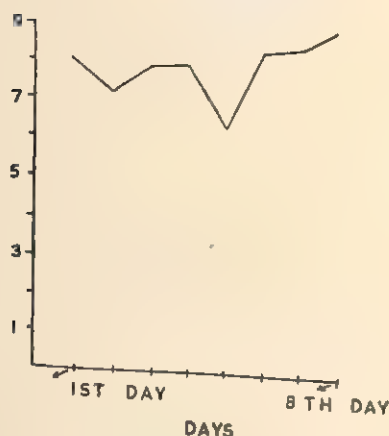


Fig. 2.1.

- 9 Completely comfortable
- 7 Moderately comfortable
- 5 Neither comfortable nor uncomfortable
- 3 Moderately uncomfortable
- 1 Completely uncomfortable

HOW WAS THE PARTICIPANTS'
PARTICIPATION IN THE GROUP?

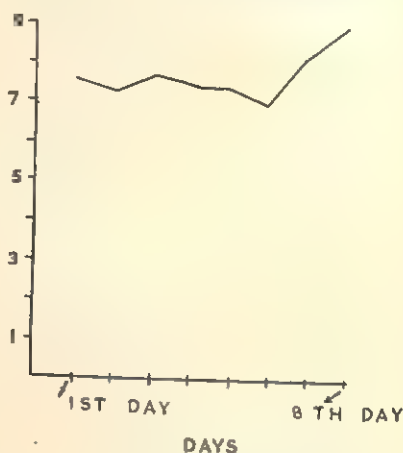


Fig. 2.2.

- 9 Very satisfying
- 7 Moderately satisfying
- 5 Neutral
- 3 Unsatisfying
- 1 No satisfaction

HOW MUCH PARTICIPANTS
THOUGHT THEY HAD LEARNT ?

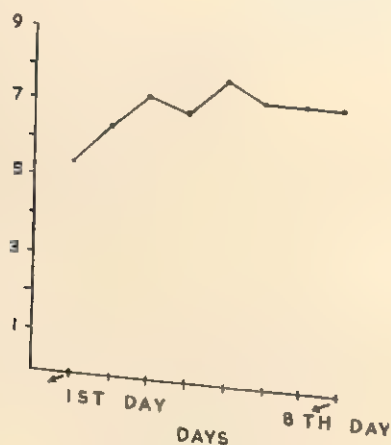


Fig. 2.3.

- 9 Learned the maximum
- 7 Learned quite a lot
- 5 Moderate learning
- 3 Learned a little
- 1 Absolutely nothing

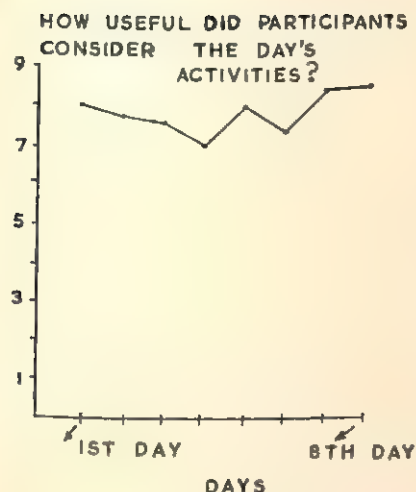


Fig. 2.4.

- 9 Very useful
- 7 Rather useful
- 5 Somewhat useful
- 3 Waste of time
- 1 Not at all useful

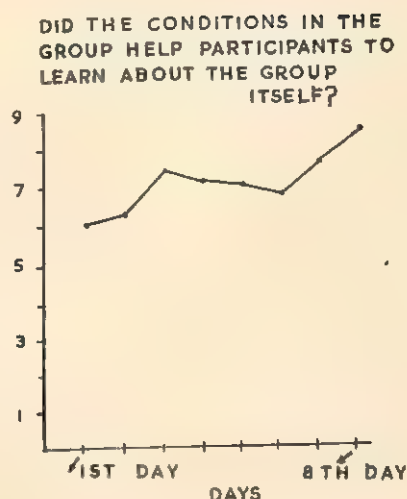


Fig. 2.5.

- 9 Learned very much
- 7 Learned quite a lot
- 5 Learned somewhat
- 3 Learned a little
- 1 Learned nothing

The end of the course evaluation

One half of the last day was devoted to an open-ended evaluation. Everybody spoke about the course. These remarks were tape-recorded.

The valedictory function

The valedictory function was presided over by the Chairman, Board of Secondary Education, Rajasthan.

THE ASPIRATIONS BOOSTING PROGRAMME

The two-day Aspirations Boosting Training was attended by 14 teachers from four experimental schools (E3, E4, E5 and E6). Seven of the 14 teachers had earlier attended the 10-day course. For them it was a continuation of the previous training.

Focus of the course

The course centered round three ideas and the practical manipulation of these ideas in classrooms. The ideas were: socio-educational norms; aspirations and the feedback process. The over-all objective of the training course was to enable the teachers to use some of these ideas in an

organized and standardized way in order to boost academic achievement in their pupils in their respective selected sections of Class IX. Most of the time, therefore, was devoted to discussing the various implications of the above ideas for academic achievement. The trainees received four brief papers concerning the above ideas by way of training material. These papers were read in advance as well as during the course, and were briefly discussed. The attention of the trainees was particularly drawn to the relevant portion of these papers which dealt with academic achievement in classrooms.

The teachers' resistance

As is usual with teachers, soon after the first session, in which the general plan of the training as well as the programme to follow in schools was explained, the participants began to raise doubts in the form of practical difficulties. Many of these doubts are well known; they tend to be repeated at most of our workshops and training courses for teachers. The second session was therefore devoted to a kind of open-ended discussion on whether or not teachers can help their pupils to better their academic achievement as compared to what they currently achieve. All the teachers participated in this discussion which turned out to be very lively and interesting. The teachers got an opportunity to express some of their aggression against the system of education and the various difficulties they have to face, both academic and economic. The atmosphere seemed much improved after this discussion.

The teachers' involvement

During this discussion several teachers provided excellent material for introducing the relevant topic for the training course. A part of the following session was therefore devoted to explaining the various learning experiences which the teachers could provide to their pupils. These experiences could be given, as was pointed out by the teachers themselves, irrespective of the present practical and economic difficulties. The teachers, for example, gave instances where with little attention and opportunity pupils could succeed in the areas of their interest, which in turn motivated them to put in better work leading to better performance in other academic areas as well. Some teachers talked of gangs and small groups of students and pointed out how these groups bring down the academic achievement of even those pupils who really wish to work better.

The teachers pointed out the general backwardness of parents and their apathy as well as their resistance to whatever the school does or wants parents to do. These and similar points were then discussed in

TABLE 1
n ACH SCORES OF TEACHERS BEFORE AND AFTER THE MOTIVATION TRAINING PROGRAMME AT JAIPUR

	UI	TI	AI	N	n Ach Characteristics								n Ach Score	
					I	Ga+	Ga-	Bp	Bw	H	G+	G-		Th
Before	1.44	2.88	1.62	1.08	1.44	0.27	0.0	0.0	0.09	0.09	0.00	0.00	1.17	4.32
After	0.00	0.09	5.58	4.68	5.22	1.98	0.0	0.9	0.81	1.62	4.59	0.27	5.04	30.78
Change	-1.44	-2.79	3.86	3.60	3.78	1.71	0.0	0.9	0.72	1.53	4.59	0.27	3.87	26.46

Note: The scores obtained by each participant are shown in Appendix 1.

the groups once more. At this stage, the teachers began suggesting that the training group should talk more of practical things. One of them suggested that the groups might be divided into smaller groups to discuss how these problems could be tackled in the classroom. This was the right time for distributing the programme drawn up for experimental work in this connection in the respective classes. The programme was discussed after the trainees had seen some papers relevant to the points they had earlier raised. The second day of the course was devoted to discussing and finalizing the programme of aspiration boosting in the experimental classes. This was well received by the group. The programme was then discussed in detail. The groups then finalized various practical details for the implementation of the programme.

The programme

The last session was devoted to a school-wise discussion on the programming. The participants, working in small groups, suggested various practical considerations to be borne in mind with regard to their schools for the implementation of the programme. These mostly related to time-table adjustment and the time needed for carrying out the programme. A summary of the earlier discussions and decisions was presented in the last general meeting. The tentative programme of classroom work, which was approved by the teachers, is shown in Appendix 2.

The Programme

TREATMENT I : A BRIEF COURSE IN ACHIEVEMENT MOTIVATION

As a part of our experimental programme of Motivation Training for Educational Development at Jaipur, A Brief Course in Achievement Motivation was taught to the selected Class IX boys in three higher secondary schools. The courses were taught for four months, from November 1965 to February 1966, by the teachers of the respective schools who were earlier trained for this purpose. The course was geared to the level of the teachers and through them to the level of Class IX pupils. Efforts were made to make the course both interesting and instructive. The following methods were adopted in this connection :

1. The teachers were continuously supplied with instructional material to enable them to teach the desired course in their respective classrooms. The instructional kit contained talks, games, exercises, questionnaires, inventories and scoring material.
2. As stated above, four class periods were devoted each week to this Course, making a total of about 64 class periods. Several teachers cooperated in carrying out the programme. They divided the work among themselves. One teacher worked as the coordinator of the programme in each school. He was mainly responsible for carrying out the programme. The principals were continuously kept informed about the progress of the programme.
3. A series of posters were supplied to teachers to aid teaching of the language of achievement motivation. These posters were appropriately displayed in the respective classrooms.
4. The project staff paid about 20 visits to Jaipur and spent a total of about 96 days helping and supervizing the work, in an endeavour to keep the programme standardized in all schools.
5. A mid-review meeting was called in the middle of January 1966. The principals and teachers of the schools concerned, the officials of the Department of Education and the project staff participated in the meeting. The teachers reported on their progress. They made several suggestions in order to help themselves in carrying out the programme in the desired way.

Specific objectives of the course

The over-all objective of the entire experimental programme was to raise the level of *n* Ach both in teachers and in their pupils. The emphasis was on developing the hope of success in teachers and their pupils. It was hoped that the activities designed to achieve the above objective would lead to better academic achievement in pupils. These broad objectives of the Course were specified as follows:

1. To develop in the pupils a desire to work towards some standard of performance which may be either a self-imposed or an external one.
2. To develop 'goal-directedness' in pupils. Behaviourally, the Course would seek to develop thinking about achievement and vocational goals.
3. To develop appreciation of the fact that attainment of achievement goals is not easy. One has to face difficulties from the outside world, personal shortcomings and failures. Achievement needs consistent efforts.
4. To promote thinking about and to try to strengthen the following characteristics in pupils:
 - (i) *Sense of responsibility* : Owning responsibility for decisions and for their own performance.
 - (ii) *Carefulness in planning* and carrying out study activities.
 - (iii) *Intelligent use of time* : Understanding the value of time.
 - (iv) *Regular work habits*.
 - (v) Willingness to undertake new activities, *readiness to accept feedback* on one's own performance, willingness to know and discuss performance, willingness to know and discuss performance with teachers, peers and others.
5. To familiarize pupils with the language of *n* Ach and prepare them to use this language.
6. To encourage pupils to ask questions and to make them feel free to raise doubts in classrooms.

A brief description of the course

The outline of each topic contained specific instructions to the teacher and the taught for the work to be carried out. (The instructional kit in Hindi is available separately.)² The following gives a very brief summary

² The original instruction kit in Hindi is available at the Department of Psychological Foundations, National Institute of Education, Mehrauli Road, New Delhi-16.

of the main points contained in each outline. The items in the programme were carried out in the sequence shown in Table 2. The time devoted to each of the items is also shown in the table.

TABLE 2

ITEMS OF THE COURSE, WITH TIME DEVOTED TO EACH

<i>Items</i>	<i>Class periods devoted</i>
1. Who Am I and Why Am I Here	4
2. Characteristics of a successful person	4
3. Life goals	5
4. Thoughts of success	5
5. The scoring technique: A brief manual for scoring Achievement Imagery	16
6. Creativity	3
7. A short play on achievement-related theme	4
8. A short folk tale	5
9. A short biography of a scientist	5
10. Achievement plan inventory	4
11. Concluding session	3

1. 'Who Am I' 'Why Am I Here'

The programme started with this exercise. Pupils spoke about themselves and on the reasons for their being in school. One faculty member and the teachers concerned were present during this exercise. The item aimed at 'opening up' the boys and involving them in the work to follow later. The teacher in charge of the programme explained the objectives and nature of this new activity. The boys later wrote essays on 'Who Am I' and 'Why Am I Here.'

2. Characteristics of a successful person

The item which followed 'Who Am I' and 'Why Am I Here' sought to stimulate thoughts of success in the pupils. It focussed on four qualities: (i) sense of responsibility, (ii) ability to take quick decisions; (iii) exchange of ideas with others regarding one's own success or failure; and (iv) full and proper use of one's time. One hour was devoted to each of these four qualities.

Sense of responsibility. The teacher introduced the topic in a general way, emphasizing the importance of hard work in attaining success. He then posed two questions: What do we mean by sense of responsibility? and (ii) 'Name some such persons from our contemporary life who have shown a great sense of responsibility under difficult conditions.' A practical problem connected with a scouting camp was then proposed. The class discussed the various tasks and responsibilities needed to conduct the camp successfully. The boys actually opted for various responsibilities. A teacher summed up by calling attention to the importance of team work, in discharging responsibilities for the success of any such work.

Quick decisions. The teacher again introduced this topic in a general way, saying that successful persons show the remarkable quality of taking the right decisions quickly and in time. He invited the pupils to discuss the problem of India's food production and suggest ways to improve the situation. (India was then passing through a difficult food situation, and the leaders and press were calling upon the people to grow food wherever they could). The teacher emphasized that if they succeed in implementing their suggestions the credit would go to them. In case they failed, they should be prepared to own their responsibility.

Exchange of ideas with others: Exchange of Ideas on One's Performance. The teacher here explained the meaning of this quality by giving suitable examples. He tried to explain the meaning of 'feedback'. He then prepared the class to do a brief role-play. He briefed three boys for the content of the role-play. These three boys then talked to one another for about four minutes. The rest of the boys observed them. The class then discussed as to who talked in what way and what they felt when the role-play was going on. They also gave their reactions to the behaviour and way of talking of each person in the role-play. At the end, the teacher, explained that they are giving feedback to one another. He further drew the attention of the class to the fact that getting and giving feedback on one's own behaviour is an important quality of a successful person.

Proper use of time. This item mainly contained a practical exercise. The teacher held up a watch and told the class to observe him. He then asked the class to tell him the duration of the time that had elapsed. He did this five times, giving different time-intervals. Each time, the pupils tried to estimate the time-interval and wrote it on their note-books. Later, the teacher drew their attention to the fact that even half a minute was a long time. He then told them that successful persons try to use their time fully and properly.

The teacher summarized all the four items and the work the pupils had done under each. He told them that psychologists have been trying to find out the motives of successful persons. Why they behave the way they do? What is the source of their activities? He left them to ponder over these questions, saying that these would be taken up later in the programme.

3. Life goals

This item sought to explain the importance of life goals and to stimulate pupils to try to set some goals for themselves in various fields. The overall purpose was gradually to help pupils to set achievement goals. This programme was divided into two parts. First, there was a brief discussion on the meaning and importance of life goals and instructions were given for taking the life-goal inventory. Secondly, the boys took home the life-goal inventory and brought it back the following day. Then their responses were discussed briefly, after which the boys were divided into small groups in which they discussed their life goals.

4. Thoughts of success

This item sought to stimulate and promote thoughts of success in pupils. It tried to strengthen their desire to succeed and to create a readiness in them to undertake work for their goals. Discussions, questions and answers, small group work, essay-writing and brief mental exercise formed the methods of work. These activities were divided into four parts, each lasting one hour. The teacher started by recalling the various qualities of a successful person. He then introduced the exercise, asking the pupils to recall some successful events from their life. He distributed papers to enable the boys to write about this in about 15 minutes. He went round the class, encouraging the pupils to write. He then collected the papers, picked out some, and read the descriptions but without naming the authors. As he read them, he recorded the significant points on the blackboard. He then tried to emphasize the importance of the desire to succeed. Later, he helped the pupils to think about the life and work of Jawaharlal Nehru. His various qualities and the significant events of his life were discussed in about five to seven minutes. The teacher then distributed papers asking the pupils to write a brief essay on the important qualities of Jawaharlal Nehru. The boys were then divided into small groups of five to six each. They exchanged their essays with one another and discussed them, and one of them then recorded the common points and prepared a summary of what they thought were the main qualities of Jawaharlal Nehru. These summaries were then discussed in the entire class. The teacher summed

up by saying that, for success, qualities like goalsetting, sacrifice, self-confidence, hard work, and a keen desire to succeed are needed.

In the next exercise some puzzles were given. These were printed on sheets distributed to each boy. These puzzles involved quick wit and clear thinking. The teacher summarized the various activities done under this item. He gave examples from the essays and mentioned the significant events described by the boys to illustrate the point that thoughts of success are necessary for real success. He emphasized the point that persons who think they would succeed and who work to get this success are more likely to succeed.

6. The scoring technique: A brief manual for scoring Achievement Imagery (scoring of achievement-related stories)

The item sought to each: (i) the preliminaries for scoring achievement-related stories, and (ii) the language of achievement motivation. The teacher started the topic by recalling the qualities of a successful person and the importance of thoughts of success and success imagination. He introduced here the term 'achievement motivation' saying that the motive to achieve is really important for success. The item was divided into four parts, each covered in two hours (4 school periods). Part I dealt with the categories and sub-categories of the achievement motive. The criteria for coding achievement imagery were explained here. The teacher told a story and then asked various questions about the story. The answers were recorded on the board. He raised some questions also. These questions and answers enabled the class to go on to the sub-categories. All the ten sub-categories—Need; Instrumental Activity; Goal Anticipation (positive and negative); Blocks from outside and within; Help; Affect (positive and negative) and Achievement Thema—were introduced and explained at this stage. The following day the teacher recalled the previous day's work. He told them that one way to know about the achievement motive of a person is to ask him to write stories in response to pictures. These stories then can be scored. He told them, that certain objective principles have been developed to decide whether a given story contains achievement imagery or not. He gave examples to illustrate for four criteria for coding achievement imagery. He then asked the students to give examples to illustrate each of the criteria for coding achievement imagery. Various examples were thus developed in the class. Then a set of stories was distributed. The boys tried to pick up those sentences of stories, which showed any one of the criteria of achievement imagery. In their next meeting, after the teacher had given a summary of the criteria of achievement imagery and the various sub-categories, he asked the boys to write stories of their own,

so as to include as many categories as possible. Some of these stories were then discussed, the pupils being invited to support their scoring. A set of stories was distributed along with a scoring sheet. The boys scored some of these stories in the class. They carried the rest home for further scoring. The stories written by the boys earlier in response to TAT pictures were distributed during the next period. The pupils scored their own stories in the class. Another set of ten stories was then given to them for practice-scoring.

6. Creativity

This item sought to explain the meaning of creativity and to stimulate the boys to be creative. Two questionnaires were distributed; one contained some unclosed lines. The boys were required to make figures with the help of those lines on the set. The other contained certain verbal puzzles.

7. A short play on an achievement-related theme

The play sought to recall the achievement-related qualities, and categories and sub-categories of achievement-related motivation. The item was divided into two parts. In Part I, the boys prepared for the play. Under Part II, the selected boys presented the play. Each pupil was later required to answer a few questions.

8. A short folk tale

This item sought to further clarify doubts regarding the achievement language. A mimeographed story was given to each boy. The pupils were also given scoring material and a story-analysis questionnaire. They wrote stories and later answered questions.

9. A short biography of Jagdish Chandra Basu

This item also sought to strengthen the drilling of achievement language. The boys read the biographical sketch and answered specific questions. They also scored stories in a regular manner and answered related questions.

10. Achievement plan inventory

The questionnaire sought to further enable the boys to think in terms of achievement behaviour. The eight items listed on the questionnaire sought to direct their thinking along goals and various categories and sub-categories of achievement-related behaviour.

11. The concluding session

The concluding session summarized all the activities performed during the programme and stimulated boys to think further in terms of achievement goals and achievement-related behaviour. The teacher summarized, point by point, all the previous items. The boys, and certain teachers unassociated with the programme, gave their impressions about the programme.

TREATMENT II: THE ASPIRATIONS BOOSTING PROGRAMME

Teacher training

A certain number of teachers from four schools were trained in a two-day programme to carry out the treatment on aspirations boosting. The training programme is reported in Chapter 2. The teachers thus trained carried out Treatment 2 (T_2) in their respective schools. It should be recalled here that teachers from two of the three schools, who attended the ten-day course, also attended this two-day course. These teachers gave both the treatments in their classrooms.

Objectives of Treatment 2

The Aspirations Boosting Programme sought:

1. To raise the level of academic aspirations in pupils.
2. To raise the level of the self-image of their abilities.
3. To create a sense of 'goal-committedness' in them.

Activities

1. *Feedback on Psychological and Achievement Tests.* Each pupil was given a letter containing his results on the psychological and achievement tests. These letters sought, in general, to help the pupils to perceive themselves as having good abilities and intelligence. The pupils carried these statements home for their parents' persual.

2. *Goal-setting on Classroom Tests.* Four classroom tests, one each month, in English, Hindi, physics, chemistry and mathematics, were given to the selected sections. These tests, which were objective-cum-short-essay-type were set by the respective subject teachers of the classes. The results of the tests were fed back to the pupils along with a descriptive evaluation of each obtained result, as given below.

Comments

- | | |
|-----------------|--|
| 1. Excellent: | Maintain this performance |
| 2. Very good: | Continue to try |
| 3. Good: | Need a little more work |
| 4. Fairly good: | We should try to get better results |
| 5. Fair: | We should try to raise our present standard. |

After each feedback the pupils set a goal for themselves on a specified proforma for the next test. Each time the pupils took a test (after the first test) they thus had before them the score they obtained in the previous test(s) and the goal they set themselves for the forthcoming test. Each goal therefore was set on the basis of the knowledge of their latest performance. This was done for all the five subjects (namely, Hindi, mathematics, English, physics and chemistry). The goal-setting proforma is given in Appendix 5.

CHAPTER 4

Achievement and Performance in the Experimental and Control Schools

THE experiment involved one section each of Class IX boys in seven higher secondary schools, out of which five schools received some experimental treatment for about four months. As reported in Chapter 1, the experimental schools were E2, E3, E4, E5 and E6. There were two control schools: C1 and C2. All the boys concerned in seven schools were given achievement tests in physics, chemistry and mathematics, in October 1965 (pre-test) and in February-March 1966 (post-test). The thematic apperceptive measure of *n* Achievement was also given as a pre-test and post-test. The school annual examination in April 1966 served as the second post-test. Thus, one set of change-scores in *n* Achievement and two sets of change-scores in physics, chemistry and mathematics were obtained for those Ss who were present both at the pre-test and the subsequent post-tests. The specific hypotheses regarding change in school performance, mentioned in Chapter 1, and some performance of bright under-achievers, described below, were tested in the experiment.

CHANGE IN *n* ACHIEVEMENT

Implied hypotheses

The Brief Course in Achievement Motivation was taught with specific objectives, as reported in Chapter 3. The Aspirations Boosting Programme, similarly, had specific objectives. The implied hypotheses were that, the change in *n* Achievement shall be:

- i) greater in boys of E2-E3 than in boys in E5-E6 and C1-C2;
- ii) greater in boys in E5-E6 than in boys in C1-C2 (the Aspirations Boosting Programme was assumed to have aroused *n* Achievement);
- iii) greater in boys of E3-E4 than in boys in the E2: E5-E6 and C1-C2.

E2 received a brief course in achievement motivation i.e., T₁ E5-E6 received aspiration boosting programme i.e., T₂ and E3-E4 received both i.e., T₁+T₂.

Change in n Achievement: results

The boys in E3-E4 showed greater change in *n* Achievement, as predicted, than those in other schools (all $P < .005$ or less). The boys in E2 also confirmed the hypothesis by showing greater change in *n* Achievement than those in E5-E6 and C1-C2. The means and SDs at the pre- and post-test of *n* Achievement are shown in Appendix 2. Contrary to prediction, the boys in E5-E6 and C1-C2 showed no difference in the change of their *n* Achievement, as seen in Table 3. The Aspirations Boosting Programme, given alone, proved ineffective in producing change in *n* Achievement of Ss in E5-E6. The combined programme of the Brief Course in Achievement Motivation, and the Aspirations Boosting

TABLE 3

MEAN CHANGE IN *n* ACHIEVEMENT

No.	Schools	N	Mean change in <i>n</i> Ach	SD	Difference between schools	<i>t</i>	P
1.	E2	32	6.75	8.36	1 and 3	2.66	.005
2.	E3-E4	61	12.82	8.89	1 and 4	2.50	.01
3.	E5-E6	79	3.00	5.81	2 and 1	3.16	.005
4.	C1-C2	72	2.95	6.47	2 and 3	7.79	.0005
					2 and 4	7.25	.0005
					3 and 4		NS

Programme proved effective in showing greater change in Ss in E3-E4 than in Ss in E2. The Brief Course in Achievement Motivation alone also effective, as predicted, in showing greater change in *n* Achievement in Ss in E2 than in Ss who did not receive this programme. The comparison is limited by the fact that while other experimental as well as control schools were in groups of two each, E2 was left as a solitary school. There was thus a greater possibility for teacher and/or school effect, if any, to operate in E2 than in other groups.

Change in n Achievement by SES

The Ss were classified as possessing High, Middle or Low SES on the basis of the fathers' educational level, occupational status and income (Kuppuswamy, 1962). Out of those who were available for analysis, there was hardly any boy in the High SES group. Most of the boys came from the Middle SES and some from the Low SES groups. The

Low SES boys within each group of schools, as seen in Table 4, showed greater change in *n* Achievement than the Middle SES boys. This was true both of the experimental and the control schools. This finding lent support to the results of a previous survey reported in Study One, where the Low SES subjects showed greater *n* Achievement than those of Middle SES. Will Low SES subjects show greater change in their performance?

TABLE 4

MEAN CHANGE IN *n* ACHIEVEMENT OF MIDDLE AND LOW SES
BOYS IN EXPERIMENTAL AND CONTROL SCHOOLS

<i>Schools</i>	<i>Low SES</i>	<i>Middle SES</i>	<i>P*</i>
E2	<i>D</i> = 13.67 <i>n</i> = 3	<i>D</i> = 6.92 <i>n</i> = 26	.005
E3-E4	<i>D</i> = 15.79 <i>n</i> = 9	<i>D</i> = 13.05 <i>n</i> = 21	.18
E5-E6	<i>D</i> = 5.29 <i>n</i> = 21	<i>D</i> = 3.14 <i>n</i> = 42	.10
C1-C2	<i>D</i> = 6.02 <i>n</i> = 11	<i>D</i> = 3.87 <i>n</i> = 39	.05

* The Mann Whitney one-tailed U-test

CHANGE IN SCHOOL PERFORMANCE

The achievement tests

The results at the annual examination showed, in some cases high, and in some moderate, positive correlations with the results of the pre-test (October 1965), as seen in Table 5. The annual examination results were therefore utilized as the second post-test for the purpose of the analyses reported below.

The standardized post-tests were limited by the fact that the schools did not cover the same extent of syllabus during the period of experimentation. Some teachers felt that the papers were too difficult for their pupils. The teacher concerned indicated on the test paper, whether or not a particular item had been covered in his school. The proportions of the items in the test papers covered in each school at the time of the post-test (February 1966) are shown in Table 6. The scores on this test were comparable only for such schools which had covered an

TABLE 5

CORRELATIONS BETWEEN SCORES ON ACHIEVEMENT PRE-TESTS AND MARKS AT THE ANNUAL EXAMINATION

Schools	Physics		Chemistry		Mathematics	
	N	r	N	r	N	r
E2	39	.62	39	.57	37	.53
E3	32	.63	33	.32	31	.75
E4	34	.21 ^a	31	.26 ^a	32	.34
E5	39	.77	37	.89	41	.68
E6	44	.53	45	.83	43	.76
C1	10	.36 ^a	11	.90	11	.69
C2	38	.71	38	.71	39	.78

^a $P < .05$ or less for all, except correlations marked 'a'.

approximately equal amount of course in the given subject. The annual examination did not suffer from this limitation. Each school administered its own examination, presumably on the course taught. However, the marks obtained at different school examinations, too, were not directly comparable. These limitations prevented any meaningful comparison of schools which received the same treatments. It was possible to compare only such single schools as were comparable in terms of courses covered by them in the various subjects. The results obtained by the experimental and control schools in physics, chemistry and mathematics at the pre-test, post-test (February 1966) and the annual examination (April 1966) are shown in Appendices 2 and 3.

TABLE 6

PERCENTAGE OF TEST ITEMS COVERED IN THE SYLLABUS TILL THE DATE OF TESTING

School		Physics	Chemistry	Mathematics
Darbar	E2	77	88	69
Poddar	E3	28	73	84
Khandelwal	E4	28	42	33
Jain Subodh	E5	73	67	64
Pareek	C1	77	44	31
Manak Chowk	C2	84	67	84

These data could not be obtained from E6.

In terms of the courses covered, as shown by the information in Table 6, E2, E5, and C1 and C2 were comparable in physics, E2, E3, E5 and C2 were comparable in chemistry and mathematics; and E4 and C1 were comparable in chemistry and mathematics. The mean change-scores in performance at the February and April post-tests for the above comparable schools are shown in Table 7.

Between the experimental and control schools, the Ss in E2 (which received A Brief Course in Achievement Motivation) showed greater improvement in physics than those in C1 (Control School 1) ($P < .0005$) at the February post-tests, which was reduced at the April post-test ($P < .10$). E2 showed greater improvement in physics than C2 also, at the February post-test ($P < .025$), which was reversed in favour of C2 at the April test ($P < .001$). In the two other subjects, *i.e.*, chemistry and mathematics, C2 showed greater improvement than E2 at both the post-tests ($P < .01$ and 'less).

The Ss in E4 (which received both A Brief Course in Achievement Motivation and the Aspirations Boosting Programme) showed greater improvement in chemistry than those in C1 at both the post-tests ($P < .10$ less). In mathematics, too, E4 showed greater achievement than C1 at both the post-tests but this was statistically not significant at the April test.

Within the experimental schools, E3 (which received both the treatments) showed greater improvement in chemistry at both the post-tests ($P < .01$ or less) and in mathematics at the February test ($P < .001$). E3 showed greater achievement in chemistry than E5 (which received Aspiration Boosting Programme) at the February test, which was reversed in favour of E5 at the April test. E2 showed greater achievement than E5 in physics at the February test, which was reversed in favour of E5 at the April test. E5 showed better results than E2 in mathematics at the February test, which was reduced to non-significance at the April test.

Considering the pre-test and the February post-test, which were the same semi-standardized tests, ten of the thirteen significant differences, as seen in Table 7, were produced in the direction of prediction, as hypothesized. Most of these differences either lost their significance or were reversed at the April annual examination. Out of ten significant differences at the April test, seven were contrary to prediction.

The erratic results, as reported above, could have been due to several factors: The pre-tests and the February post-tests were at best semi-standardized and further limited by the differences in the courses covered during the period of experimentation by the schools concerned. The annual examination results in higher secondary schools in Rajasthan take

TABLE 7

MEAN CHANGE IN SCHOOL PERFORMANCE IN EXPERIMENTAL AND CONTROL SCHOOLS

Subject	From Pre-test October 1965 to Post-test February-March, 1966				Pre-test from October 1965 to Post-test April, 1966			
	Schools		t	Sign.	Schools		t	Sign.
	E2	E3			E2	E3		
Chemistry	D = 3.39 n = 38	D = 16.41 n = 34	4.39	.0005	D = 22.15 n = 39	D = 32.06 n = 33	2.41	.01
Maths.	D = 1.89 n = 37	D = 11.18 n = 22	3.06	.001	D = 18.82 n = 40	D = 19.96 n = 24	1.23	NS
	E2	E5			E2	E5		
Physics	D = 14.05 n = 39	D = 4.74 n = 39	4.34	.001	D = 22.07 n = 40	D = 39.73 n = 45	5.27	.001 ^a
Chemistry	D = 3.39 n = 38	D = 6.77 n = 31	1.24	NS	D = 22.15 n = 39	D = 41.34 n = 38	8.40	.001 ^a
Maths.	D = 1.89 n = 37	D = 7.88 n = 41	3.01	.01 ^a	D = 18.82 n = 40	D = 24.86 n = 45	1.54	NS
	E2	C2			E2	C2		
Physics	D = 14.05 n = 39	D = 10.35 n = 40	2.25	.025	D = 22.07 n = 40	D = 36.80 n = 39	5.77	.001 ^a
Chemistry	D = 3.39 n = 38	D = 12.87 n = 39	3.39	.01 ^a	D = 22.15 n = 29	D = 35.72 n = 39	5.28	.001 ^a
Maths.	D = 1.89 n = 37	D = 14.43 n = 40	4.09	.001 ^a	D = 18.82 n = 40	D = 36.36 n = 39	4.77	.001 ^a
	E2	C1			E2	C1		
Physics	D = 14.05 n = 39	D = 3.05 n = 37	5.28	.0005	D = 22.07 n = 40	D = 18.50 n = 12	1.59	.10
	E3	E5			E3	E5		
Chemistry	D = 16.41 n = 34	D = 6.77 n = 31	3.21	.005	D = 32.06 n = 33	D = 41.34 n = 38	2.34	.02 ^a
Maths.	D = 11.18 n = 22	D = 7.88 n = 41	1.45	NS	D = 19.96 n = 24	D = 24.86 n = 45	0.95	NS
	E3	C2			E3	C2		
Chemistry	D = 16.41 n = 34	D = 12.87 n = 59	1.51	.10	D = 32.06 n = 33	D = 35.72 n = 39	0.82	NS
Maths.	D = 11.18 n = 22	D = 14.43 n = 40	1.48	.10	D = 19.96 n = 24	D = 36.36 n = 39	3.01	.001 ^a
	E4	C1			E4	C1		
Chemistry	D = 3.10 n = 30	D = 3.02 n = 41	1.43	.10	D = 37.15 n = 34	D = 30.75 n = 12	1.85	.05
Maths.	D = 0.78 n = 31	D = 2.39 n = 44	1.47	.10	D = 24.20 n = 35	D = 21.42 n = 12	1.42	NS

a. Two tailed test.

into account the pupils' month-to-month work. This has greatly enhanced the value of these marks. The high correlations of these marks with the scores on the pre-test, to a certain extent, indicated this fact. In spite of reforms, the school marking continues to be subjective and subject to errors. Besides the crudeness of the measures of school performance, the school and/or teacher effect, the pupil's intelligence and his socio-economic background might have influenced the results reported above.

It was decided to control intelligence and social class in further analyses. The classification of pupils by intelligence and social class inevitably reduced considerably the numbers in each school. In order to obtain the minimum numbers necessary for meaningful analyses and to reduce the school and/or teacher effect, it was necessary to group similar Ss according to the treatment received by them. In analyses for such combined groups it was not possible to use the incomparable raw marks obtained at the pre- and post-tests. The raw marks obtained by each subject at the pre-test, the February post-test and the April examination were converted into standard scores within each school, *i.e.*, with reference to the mean and SD of the school concerned.

The number of Ss in the High SES group was not adequate for analysis. The Low and Middle SES subjects were grouped together, treatment-wise, for the respective experimental and control schools.

Effect of social class

The Low SES experimental Ss (there were too few Low SES subjects in E2 for analysis) showed no greater change in scores on the February 1966 post-tests in physics, chemistry and mathematics than the Low SES control subjects. The former appeared to show greater change at the follow-up April (1966) annual examination than the control subjects. The results shown in Table 8, showed greater change in performance in physics and mathematics for the Low SES boys in E3-E4 and E5-E6 than for those in C1-C2. The Ss showed no difference in their performance in chemistry.

The Low SES experimental Ss (the Ss in E3-E4 and E5-E6) did not show significant difference in performance among themselves in any of the three subjects.

The Middle SES experimental Ss, as seen in Table 9, except in one case, did not show greater performance than the control Ss, either at the February post-test or at the April follow-up examination.

CHANGE IN SCHOOL PERFORMANCE OF BRIGHT UNDERACHIEVERS

The bright underachievers

The Ss were split on the median score on the group test of intelligence as High (above the median) and Low (below the median). They were similarly split on the median (all schools combined) score on the pre-test in physics, in chemistry and in mathematics.

TABLE 8

MEAN CHANGE IN SCHOOL PERFORMANCE BY LOW SES^a.

	<i>Pre-test</i> (Oct. 1965)	<i>Post-test</i> (Feb. 1966)		<i>Pre-test</i> (Oct. 1965)	<i>Annual</i> (April 1966)	
<i>Subjects</i>	<i>Schools</i>		<i>P</i>	<i>Schools</i>		<i>P*</i>
	E3-E4	C1-C2		E3-E4	C1-C2	
Physics	<i>D</i> = 49.36 <i>n</i> = 13	<i>D</i> = 50.48 <i>n</i> = 10	NS	<i>D</i> = 49.51 <i>n</i> = 13	<i>D</i> = 45.11 <i>n</i> = 12	.05
Chemistry	<i>D</i> = 49.37 <i>n</i> = 13	<i>D</i> = 53.06 <i>n</i> = 11	NS	<i>D</i> = 51.92 <i>n</i> = 12	<i>D</i> = 50.10 <i>n</i> = 12	NS
Mathematics	<i>D</i> = 49.09 <i>n</i> = 13	<i>D</i> = 52.49 <i>n</i> = 11	NS	<i>D</i> = 52.40 <i>n</i> = 14	<i>D</i> = 48.96 <i>n</i> = 12	.11
	E5-E6	C1-C2		E5-E6	C1-C2	
Physics	<i>D</i> = 50.47 <i>n</i> = 24	<i>D</i> = 50.48 <i>n</i> = 10	NS	<i>D</i> = 51.36 <i>n</i> = 24	<i>D</i> = 45.11 <i>n</i> = 12	.03
Chemistry	<i>D</i> = 49.86 <i>n</i> = 23	<i>D</i> = 53.06 <i>n</i> = 11	NS	<i>D</i> = 50.97 <i>n</i> = 22	<i>D</i> = 50.10 <i>n</i> = 12	NS
Mathematics	<i>D</i> = 50.49 <i>n</i> = 23	<i>D</i> = 52.49 <i>n</i> = 11	NS	<i>D</i> = 51.72 <i>n</i> = 23	<i>D</i> = 48.98 <i>n</i> = 12	.18
	E3-E4	E5-E6		E3-E4	E5-E6	
Physics	<i>D</i> = 49.36 <i>n</i> = 13	<i>D</i> = 50.47 <i>n</i> = 24	NS	<i>D</i> = 49.51 <i>n</i> = 13	<i>D</i> = 51.36 <i>n</i> = 24	NS
Chemistry	<i>D</i> = 49.37 <i>n</i> = 13	<i>D</i> = 49.86 <i>n</i> = 23	NS	<i>D</i> = 51.92 <i>n</i> = 12	<i>D</i> = 50.97 <i>n</i> = 22	NS
Mathematics	<i>D</i> = 49.09 <i>n</i> = 13	<i>D</i> = 50.49 <i>n</i> = 23	NS	<i>D</i> = 52.40 <i>n</i> = 14	<i>D</i> = 51.72 <i>n</i> = 23	NS

* Mann Whitney one-tailed U-test.

^a Standard scores used in these analyses.

TABLE 9

MEAN CHANGE IN SCHOOL PERFORMANCE BY MIDDLE SES.

Subject	Pre-test (October 1965)			Post-test (February 1966)			Pre-test (October 1965)			Annual (April 1966)		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Physics	23	E3-E4 49.49	10.19	31	E2 49.18	7.73	25	E3-E4 51.72	9.48	33	E2 51.86	5.56
	24	49.66	11.84	31	52.43*	4.93	25	49.39	6.18	32	50.87	10.30
	19	50.98	15.68	31	46.42	10.97	21	49.86	10.18	33	50.34	10.24
Physics	23	E3-E4 49.49	10.19	44	E5-E6 50.16	8.88	25	E3-E4 51.72	9.48	46	E5-E6 51.65	7.97
	24	49.66	11.84	40	48.59*	8.95	25	49.39	6.18	44	49.64	11.63
	19	50.98	15.68	45	48.66	14.79	21	49.86	10.18	46	51.28	4.71
Physics	23	E3-E4 49.49	10.19	30	CI-C2 51.38	8.76	25	E3-E4 51.72	9.48	30	CI-C2 51.28	8.96
	24	49.66	11.84	31	48.34	13.37	25	49.39	6.18	31	49.71	10.68
	19	50.98	15.68	31	49.95	9.05	21	49.86	10.18	31	49.96	9.94
Physics	31	E2 49.18	7.73	44	E5-E6 50.16	8.88	33	E2 51.86	5.56	46	E5-E6 51.62	7.97
	31	52.43	4.93	40	48.59	8.95	32	50.87	10.30	44	49.64	11.39
	31	46.62	10.97	45	48.66	14.79	33	50.34	10.24	46	51.28	4.71

TABLE 9 (Contd.)

Subject	Pre-test (October 1965)			Post-test (February 1966)			Pre-test (October 1965)			Annual (April 1966)		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Physics	31	49.18	7.73	30	51.38	8.76	E2	51.86	5.56	32	51.28	8.96
Chemistry	31	52.43	4.93	31	48.34	13.37	32	50.87	10.30	32	49.71	10.68
Mathematics	31	46.42	10.97	31	49.95	9.05	33	50.34	10.34	32	49.96	9.94
Physics	44	50.16	8.88	30	51.38	8.76	E5-E6	51.65	7.97	32	51.28	8.96
Chemistry	40	48.59*	8.95	31	48.34	13.37	44	49.64	11.63	32	49.71	10.68
Mathematics	45	48.66	14.79	31	49.95	9.05	46	51.28	4.71	32	49.96	9.94

* This difference is significant at .05. All other differences not significant.

The Ss High on intelligence and Low on the physics test comprised the bright underachievers in physics. The bright underachievers in chemistry and mathematics were obtained similarly.

The change in n Achievement of bright underachievers

The bright underachieving experimental and control Ss showed the same trends of change in n Achievement as were shown by the combine groups (Table 10). The bright underachievers in E3-E4 showed greater change in n Achievement than those in E2, E5-E6 and C1-C2, as seen in Table 10. Those in E2 showed greater change than those in E5-E6 and C1-C2, and the last two groups showed no difference.

Improvement in school performance

The bright underachievers in E2, E3-E4 and E5-E6 showed no greater improvement in school performance in physics, chemistry and mathematics than the bright underachieving control Ss at the February post-test. The former (*i.e.*, the experimental Ss) started showing greater improvement, than the control Ss at the April examination, as seen in Table 11. The bright underachievers in E3-E4 showed somewhat greater change than the control Ss ($P < .20$) in chemistry, but in no other subject. Those in E2 showed greater change in performance in physics than the control Ss ($P < .10$), but in no other subject. The bright underachievers in E5-E6 showed greater improvement in physics than the control Ss ($P < .05$) at the April examination, as seen in Table 11.

TABLE 10

MEAN CHANGE IN n ACHIEVEMENT OF BRIGHT UNDER ACHIEVERS BY SCHOOLS

Schools	Groups	Mean change in n Achievement		P^a
		1	2	
1	2			
E2	E3-E4	$D = 10.16$ $n = 6$	$D = 14.07$ $n = 14$	.01
E2	E5-E6	$D = 10.16$ $n = 6$	$D = 4.00$ $n = 17$	.01
E2	C1-C2	$D = 10.16$ $n = 6$	$D = 3.31$ $n = 19$	.01
E3-E4	E5-E6	$D = 14.07$ $n = 14$	$D = 4.00$ $n = 17$	.01
E3-E4	C1-C2	$D = 14.07$ $n = 14$	$D = 3.31$ $n = 19$	.01
E5-E6	C1-C2	$D = 4.00$ $n = 17$	$D = 3.31$ $n = 19$	NS

^a Mann-Whitney one-tailed U-test

TABLE 11

MEAN CHANGE IN SCHOOL PERFORMANCE OF BRIGHT UNDER ACHIEVERS IN EXPERIMENTAL AND CONTROL SCHOOLS

Subjects	Pre-test October 1965 to Post-test February-March 1966			Pre-test October 1965 to Post-test April, 1966.		
	Schools		Sig.	Schools		Sig.
	E2	E3-E4		E2	E3-E4	
Physics	$D = 49.13$ $n = 8$	$D = 48.72$ $n = 14$	NS	$D = 50.40$ $n = 8$	$D = 47.20$ $n = 15$	NS
Chemistry	$D = 48.43$ $n = 8$	$D = 49.56$ $n = 16$	NS	$D = 48.09$ $n = 8$	$D = 52.10$ $n = 11$	.20
Mathematics	$D = 47.81$ $n = 8$	$D = 52.88$ $n = 13$	NS	$D = 50.22$ $n = 8$	$D = 53.19$ $n = 9$	NS
	E2	E5-E6		E2	E5-E6	
Physics	$D = 49.13$ $n = 8$	$D = 51.81$ $n = 18$	NS	$D = 50.40$ $n = 8$	$D = 52.64$ $n = 17$	NS
Chemistry	$D = 48.43$ $n = 8$	$D = 48.20$ $n = 16$	NS	$D = 48.09$ $n = 8$	$D = 49.86$ $n = 13$	NS
Mathematics	$D = 47.81$ $n = 8$	$D = 48.68$ $n = 18$	NS	$D = 50.22$ $n = 8$	$D = 50.40$ $n = 15$	NS
	E2	C1-C2		E2	C1-C2	
Physics	$D = 49.13$ $n = 8$	$D = 50.69$ $n = 21$	NS	$D = 50.40$ $n = 8$	$D = 46.19$ $n = 14$	.10
Chemistry	$D = 48.43$ $n = 8$	$D = 51.08$ $n = 20$	NS	$D = 48.09$ $n = 8$	$D = 48.02$ $n = 12$	NS
Mathematics	$D = 47.81$ $n = 8$	$D = 48.50$ $n = 18$	NS	$D = 50.22$ $n = 8$	$D = 31.45$ $n = 12$	NS
	E3-E4	E5-E6		E3-E4	E5-E6	
Physics	$D = 48.72$ $n = 14$	$D = 51.81$ $n = 18$	NS	$D = 47.20$ $n = 15$	$D = 52.64$ $n = 17$	.05
Chemistry	$D = 49.56$ $n = 16$	$D = 48.20$ $n = 16$	NS	$D = 52.10$ $n = 11$	$D = 49.86$ $n = 13$	NS
Mathematics	$D = 52.88$ $n = 13$	$D = 48.68$ $n = 18$	NS	$D = 53.19$ $n = 9$	$D = 50.40$ $n = 15$	NS
	E3-E4	C1-C2		E3-E4	C1-C2	
Physics	$D = 48.72$ $n = 14$	$D = 50.69$ $n = 21$	NS	$D = 47.20$ $n = 15$	$D = 46.19$ $n = 14$	NS
Chemistry	$D = 49.56$ $n = 16$	$D = 51.08$ $n = 20$	NS	$D = 52.10$ $n = 11$	$D = 48.02$ $n = 12$	.20
Mathematics	$D = 52.88$ $n = 13$	$D = 48.50$ $n = 18$	NS	$D = 53.19$ $n = 9$	$D = 51.45$ $n = 12$	NS
	E5-E6	C1-C2		E5-E6	C1-C2	
Physics	$D = 51.81$ $n = 18$	$D = 50.69$ $n = 21$	NS	$D = 52.64$ $n = 17$	$D = 46.19$ $n = 24$	.05
Chemistry	$D = 48.20$ $n = 16$	$D = 51.08$ $n = 20$	NS	$D = 49.86$ $n = 13$	$D = 48.02$ $n = 12$	NS
Mathematics	$D = 48.68$ $n = 18$	$D = 48.50$ $n = 18$	NS	$D = 50.40$ $n = 15$	$D = 51.45$ $n = 12$	NS

The bright underachieving experimental Ss showed no differences among themselves, at their performance in the February post-test as seen in Table 11. However, certain differences appeared at the April examination. The Ss in E3-E4 showed somewhat greater improvement in chemistry than those in E2 ($P < .20$). The bright underachievers in E2 and E5-E6 showed no differences at the April examination also. The latter, *i.e.*, those in E5-E6 showed greater improvement in physics, contrary to prediction ($P < .10$), than those in E3-E4.

Effect of social class

The Low SES bright underachieving experimental and control Ss showed equal change in performance at the February post-test. The Low SES bright underachievers in E3-E4 started showing greater improvement in their performance in physics, chemistry and mathematics than the control Ss at the April Examination. The Low SES bright underachievers in E5-E6 showed greater improvement in physics than the control Ss but failed to show it in chemistry and mathematics.

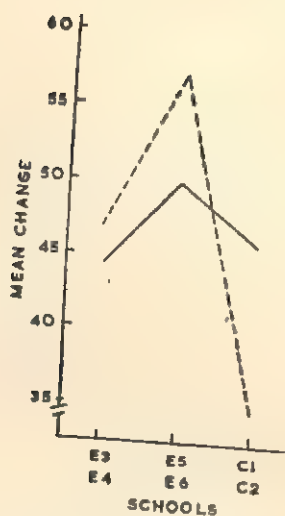


Fig. 4.1.

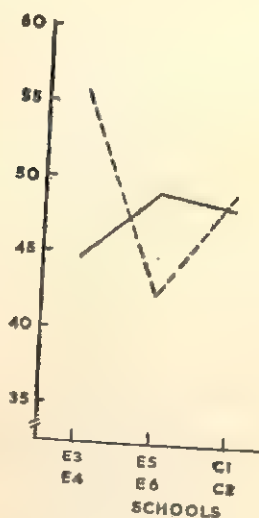


Fig. 4.2.

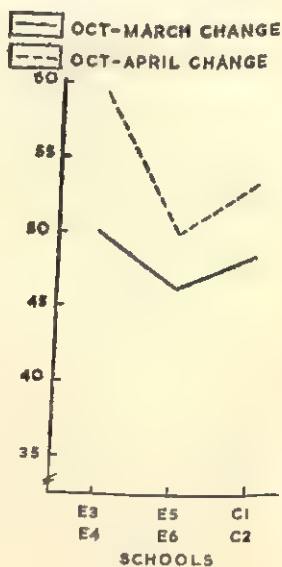


Fig. 4.3.

Mean change in physics Mean change in chemistry Mean change in mathematics
Mean change in School Performance of Bright underachiever in Experimental and Control Schools by Fathers' Middle Socio-economic Status.

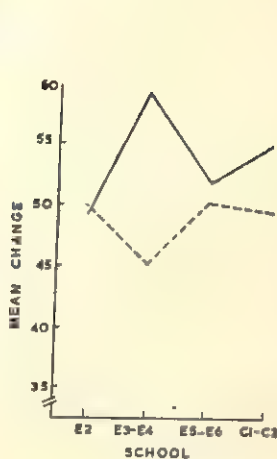


Fig. 4.4.

Mean change in physics

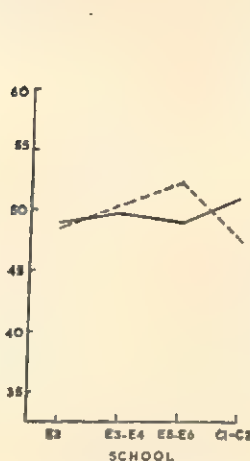


Fig. 4.5.

Mean change in chemistry

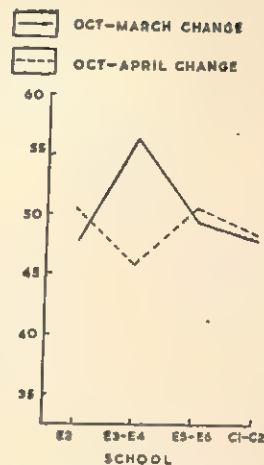


Fig. 4.6.

Mean change in mathematics

Mean change in School Performance of Bright Underachievers in Experimental and Control Schools by Fathers' Low Socio-economic Status

The Low SES subjects in E3-E4 showed greater improvement in performance in chemistry and mathematics (at .02 level), than those in E5-E6, as predicted. The latter showed greater improvement in physics than Ss in E3-E4, as seen in Table 12.

The Middle SES experimental Ss, except in one case, did not show greater improvement than the control Ss, either at February post-test or at the follow-up April examination. The Ss in E3-E4 showed greater change in performance in mathematics, as seen in Table 13, than the controls at the February post-test; this should not be sustained at the April examination.

DISCUSSION

The differences in the courses covered by different schools during the four-month period of experimentation and different tests given by different schools at the annual examination imposed a limitation on the results obtained. The February post-test did reveal greater improvement in the performance of the experimental Ss than in that of the control Ss, in several cases, thus lending support to the hypotheses. These trends towards improvement were however reversed in most of the cases at the April examination. The trends were therefore unclear. The results became clearer when the Ss in the respective treatment groups were classified by their SES. The Low SES experimental Ss showed no

difference in performance from the Low SES control Ss at the February post-test. The former revealed significantly greater improvement than the control Ss at the April follow-up examination. The middle SES

TABLE 12

MEAN CHANGE IN SCHOOL PERFORMANCE OF BRIGHT UNDERACHIEVERS IN EXPERIMENTAL AND CONTROL SCHOOL BY FATHERS' LOW SOCIO-ECONOMIC STATUS

Subjects	Pre-test October, 1965 to Post-test February-March, 1966			Pre-test October, 1965 to Post-test April, 1966		
	Schools		Sig.	Schools		Sig.
	E3-E4	C1-C2		E3-E4	C1-C2	
Physics	$D = 44.12$ $n = 4$	$D = 46.86$ $n = 4$	NS*	$D = 47.52$ $n = 4$	$D = 34.40$ $n = 3$	.02
Chemistry	$D = 44.73$ $n = 4$	$D = 48.86$ $n = 4$	NS	$D = 56.06$ $n = 4$	$D = 49.68$ $n = 3$	.20
Mathematics	$D = 50.18$ $n = 4$	$D = 48.48$ $n = 4$	NS	$D = 59.24$ $n = 4$	$D = 53.10$ $n = 3$	.11
	Schools			Schools		
	E5-E6	C1-C2		E5-E6	C1-C2	
Physics	$D = 49.95$ $n = 5$	$D = 46.86$ $n = 4$	NS	$D = 57.00$ $n = 4$	$D = 34.40$ $n = 3$	.02
Chemistry	$D = 49.67$ $n = 4$	$D = 48.06$ $n = 4$	NS	$D = 42.48$ $n = 3$	$D = 49.68$ $n = 3$	NS
Mathematics	$D = 46.95$ $n = 5$	$D = 48.48$ $n = 3$	NS	$D = 49.98$ $n = 4$	$D = 53.10$ $n = 3$	NS
	Schools			Schools		
	E3-E4	E5-E6		E3-E4	E5-E6	
Physics	$D = 44.12$ $n = 4$	$D = 49.95$ $n = 5$	NS	$D = 47.52$ $n = 4$	$D = 57.00$ $n = 4$	.02
Chemistry	$D = 44.73$ $n = 4$	$D = 49.67$ $n = 4$	NS	$D = 56.06$ $n = 4$	$D = 42.48$ $n = 3$	.02
Mathematics	$D = 50.18$ $n = 4$	$D = 46.95$ $n = 5$	NS	$D = 59.24$ $n = 4$	$D = 49.98$ $n = 4$	.02

* Mann Whitney U Test

b a two tailed U test

NOTE: The number of Low SES bright underachievers in E2 not enough for analysis; standard scores used in the analysis

TABLE 13

MEAN CHANGE IN SCHOOL PERFORMANCE OF BRIGHT UNDERACHIEVERS IN EXPERIMENTAL AND CONTROL SCHOOLS BY FATHERS' MIDDLE SOCIO-ECONOMIC STATUS

Subjects	Pre-test October, 1965 to Post-test February-March, 1966			Pre-test, October, 1965 to Post-test April, 1966		
	Schools		<i>sP^a</i>	Schools		<i>P^a</i>
	E2	C1-C2		E2	C1-C2	
Physics	<i>D</i> = 49.12 <i>n</i> = 8	<i>D</i> = 54.90 <i>n</i> = 10	NS	<i>D</i> = 50.04 <i>n</i> = 8	<i>D</i> = 49.12 <i>n</i> = 9	NS
Chemistry	<i>D</i> = 48.43 <i>n</i> = 8	<i>D</i> = 51.22 <i>n</i> = 10	NS	<i>D</i> = 48.09 <i>n</i> = 8	<i>D</i> = 47.47 <i>n</i> = 9	NS
Mathematics	<i>D</i> = 47.82 <i>n</i> = 8	<i>D</i> = 47.95 <i>n</i> = 9	NS	<i>D</i> = 50.22 <i>n</i> = 8	<i>D</i> = 50.91 <i>n</i> = 9	NS
	Schools			*Schools		
	E3-E4	C1-C2		E3-E4	C1-C2	
Physics	<i>D</i> = 58.71 <i>n</i> = 5	<i>D</i> = 54.90 <i>n</i> = 10	NS	<i>D</i> = 45.12 <i>n</i> = 5	<i>D</i> = 49.12 <i>n</i> = 9	NS
Chemistry	<i>D</i> = 49.83 <i>n</i> = 4	<i>D</i> = 51.22 <i>n</i> = 10	NS	<i>D</i> = 50.62 <i>n</i> = 5	<i>D</i> = 47.47 <i>n</i> = 9	NS
Mathematics	<i>D</i> = 56.54 <i>n</i> = 4	<i>D</i> = 47.95 <i>n</i> = 9	.05	<i>D</i> = 45.80 <i>n</i> = 5	<i>D</i> = 50.91 <i>n</i> = 9	NS
	Schools			Schools		
	E5-E6	C1-C2		E5-E6	C1-C2	
Physics	<i>D</i> = 52.51 <i>n</i> = 12	<i>D</i> = 54.90 <i>n</i> = 10	NS	<i>D</i> = 50.88 <i>n</i> = 13	<i>D</i> = 49.12 <i>n</i> = 9	NS
Chemistry	<i>D</i> = 48.54 <i>n</i> = 11	<i>D</i> = 51.22 <i>n</i> = 10	NS	<i>D</i> = 52.82 <i>n</i> = 10	<i>D</i> = 47.47 <i>n</i> = 9	NS
Mathematics	<i>D</i> = 49.21 <i>n</i> = 12	<i>D</i> = 47.95 <i>n</i> = 9	NS	<i>D</i> = 50.56 <i>n</i> = 11	<i>D</i> = 50.91 <i>n</i> = 9	NS
	Schools			Schools		
	E2	E3-E4		E2	E3-E4	
Physics	<i>D</i> = 49.12 <i>n</i> = 8	<i>D</i> = 48.71 <i>n</i> = 5	NS	<i>D</i> = 50.04 <i>n</i> = 8	<i>D</i> = 45.12 <i>n</i> = 5	NS
Chemistry	<i>D</i> = 48.43 <i>n</i> = 8	<i>D</i> = 49.83 <i>n</i> = 4	NS	<i>D</i> = 48.09 <i>n</i> = 8	<i>D</i> = 50.62 <i>n</i> = 5	NS
Mathematics	<i>D</i> = 47.82 <i>n</i> = 8	<i>D</i> = 56.64 <i>n</i> = 4	NS ^b	<i>D</i> = 50.22 <i>n</i> = 8	<i>D</i> = 45.50 <i>n</i> = 5	NS

TABLE 13 (Contd.)

	<i>Schools</i>			<i>Schools</i>		
	E2	E5-E6		E2	E5-E6	
Physics	$D = 49.12$ $n = 8$	$D = 52.51$ $n = 12$	NS	$D = 50.04$ $n = 8$	$D = 50.88$ $n = 13$	NS
Chemistry	$D = 48.43$ $n = 8$	$D = 48.54$ $n = 11$	NS	$D = 48.09$ $n = 8$	$D = 52.82$ $n = 10$	NS
Mathematics	$D = 47.82$ $n = 8$	$D = 49.21$ $n = 12$	NS	$D = 50.22$ $n = 8$	$D = 50.56$ $n = 11$	NS

	<i>Schools</i>			<i>Schools</i>		
	E3-E4	E5-E6		E3-E4	E5-E6	
Physics	$D = 48.71$ $n = 5$	$D = 52.51$ $n = 12$	NS	$D = 45.12$ $n = 5$	$D = 50.88$ $n = 13$	NS
Chemistry	$D = 49.83$ $n = 4$	$D = 48.54$ $n = 11$	NS	$D = 50.62$ $n = 5$	$D = 52.82$ $n = 10$	NS
Mathematics	$D = 56.54$ $n = 4$	$D = 49.21$ $n = 12$	NS	$D = 45.80$ $n = 5$	$D = 50.56$ $n = 11$	NS

^a Mann-Whitney one tailed U test^b a two tailed test^c

experimental and control Ss showed no difference either at the February or at the April tests. The above trends became still clearer in the case of the Low SES bright underachievers in E3-E4 (both treatments combined) who uniformly showed greater improvement in physics, chemistry and mathematics than the control Ss at the April follow-up examination. The Low SES bright underachievers in E5-E6 showed greater improvement than the control Ss at the April test only in physics. Those in E3-E4 showed greater improvement than the Low SES bright underachievers in E5-E6 at the April post-test in chemistry and mathematics. This was reversed in the case of physics, in favour of E5-E6. The middle SES subjects showed no such trends.

The results indicated that teaching achievement motivation characteristics along with goal-setting in the classroom enabled the Low SES bright underachievers to improve their performance at the annual examination which came two months after the experimental programmes were over. The Low SES experimental Ss also showed greater gain in *n* Achievement than their middle SES counterparts, within each group. The results in the present experiment were opposite to those obtained by Kolb (1965) in a somewhat different kind of experiment. Kolb taught the characteristics of persons with high *n* Achievement to bright

underachievers attending a summer coaching camp. He found the High SES experimental Ss showing greater improvement in their academic performance.

In an earlier survey (Study One) the Low SES Ss were found to have a higher level of *n* Achievement than those with Middle SES. In the present study, it was the Low SES bright underachieving experimental Ss who showed greater improvement in academic performance than the Low SES controls. The Middle SES underachievers did not show this difference. The teaching of characteristics of *n* Achievement and goal-setting in the classroom appeared to have helped the Low SES experimental Ss more than those with Middle SES in raising academic performance. The experimental programme seemed to have highlighted the need to remove underachievement in the Low SES bright underachievers. The High and Middle social class sections of society are known traditionally to prize education and achievement more than the Low SES sections. Have the Low SES sections of our society begun to value education and good performance more than the Middle SES sections. No data were available in the present study to answer this question.

These results provided support to the hypothesis that the teaching of characteristics of persons with high *n* Achievement can produce improvement in the academic performance of underachieving high schools boys. The results further supported the hypothesis that this can be done by means of a regular classroom programme given by teachers trained in achievement motivation. The results showed that a combined programme of achievement motivation and goal-setting was more effective than a mere goal-setting programme.

The appearance of significant differences in improvement in the performance of the experimental Ss and control Ss, in favour of the former, at the April examination suggested that the impact of the classroom achievement motivation programme is more likely to be felt later rather than immediately after the programme. The findings therefore suggest that the impact of the experimental programmes on the boys in this study may increase in later follow-up studies.

REFERENCES

- Atkinson, J. W. (Ed.) *Motives in Fantasy, Action and Society*. Princeton, N.J.: D. Van Nostrand, 1958.
- Burris, R. The effect of counselling on achievement motivation. Unpublished doctoral dissertation, Indiana University, 1958, as reported in D. C. McClelland, *The Achieving Society*. Princeton, N.J.: D. Van Nostrand, 1961.
- Flanders, Ned A. *Interaction Analysis in the Classroom: A Manual for Observers*. Minnesota: University of Minnesota, 1960.
- Goldstein, A. *Therapist-patient Expectancies in Psychotherapy*. New York: Pergamon Press, 1962.
- Kolb, David A. *Achievement motivation training for underachieving high school boys*. Unpublished Research Report. Harvard University.
- Kuppuswamy, B. A. *Manual of Socio-economic Status Scale*. Delhi: Mansayan, 1962.
- McClelland, D. C. *The Achieving Society*. Princeton, N.J.: D. Van Nostrand, 1961.
- McClelland, D. C. et al. *The Achievement Motive*. Princeton, N.J.: D. Van Nostrand, 1953.
- Mehta, P. *Examiner's Manual for a Group Test of Intelligence in Hindi*. Delhi: Mansayan, 1962.
- Orne, M. T. On the social psychology of the psychological experiment: with particular reference to demand characteristics and their implications. *Amer. Psychologist*, 1962, 17: 776-783.
- Page, B. E. Teacher comments and student performance. *J. Educl. Psychol.*, 1958, 173-81.
- Page, E. B. Teacher comments and student performance: A seventy-four classroom experiment in school motivation. In Charter and Gage (Eds.), *Readings in the Social Psychology of Education*. Boston: Allyn and Bacon, 1963, 219-225.
- Rosenthal, R. On the social psychology of the psychological experiment: The experimenter's hypothesis as the unintended determinant of experimental results. *Amer. Scientist*, 1963, 51: 268-283.
- Zander Alvin et al. *The influence of teachers and peers on aspirations of youth*. Cooperative Research Project No. 451. Washington, D.C.: U.S. Office of Education, 1961.

APPENDIX 1

PARTICIPANTS' ACHIEVEMENT MOTIVE SCORE BEFORE AND AFTER THE MOTIVATION TRAINING PROGRAMME

Teacher Code No.		Categories					Sub-categories								Score	Total Gain
		UI	TI	AI	N	I	Ga+	Ga-	BP	Bw	Hp	G+	G-	Th		
1.1	Before	3	2	1	-	1	1	-	-	-	-	-	-	1	1	33
	After	-	-	6	5	5	-	-	1	3	1	6	1	6	34	
1.2	Before	-	6	1	-	-	-	-	-	-	-	-	-	-	0	28
	After	-	1	5	5	5	1	-	1	2	2	5	-	2	28	
1.3	Before	1	3	2	2	2	-	-	-	-	-	-	-	1	6	20
	After	-	-	6	5	5	3	-	-	-	-	1	-	6	26	
1.4	Before	2	4	-	-	-	-	-	-	-	-	-	-	-	2	24
	After	-	-	5	5	5	-	-	-	-	1	5	-	5	26	
2.1	Before	2	2	2	1	4	-	-	-	-	-	-	-	2	5	37
	After	-	-	6	6	6	-	-	5	-	6	6	1	6	42	
2.2	Before	1	3	2	-	2	-	-	-	-	1	-	-	2	6	15
	After	-	-	5	3	5	-	-	-	-	-	3	-	5	21	
3.1	Before	-	5	1	1	1	-	-	-	-	-	-	-	-	3	26
	After	-	-	5	4	5	4	-	-	-	1	5	-	5	29	
3.2	Before	3	2	1	1	-	-	-	-	-	-	-	-	1	0	33
	After	-	-	6	5	6	2	-	2	1	1	6	-	4	33	
3.3	Before	-	3	3	2	3	-	-	-	1	-	-	-	3	12	16
	After	-	-	6	4	5	5	-	-	-	-	3	-	5	28	
3.4	Before	3	-	3	2	3	1	-	-	-	-	-	-	3	9	24
	After	-	-	6	5	6	1	-	-	-	3	6	-	6	33	
3.5	Before	1	2	3	3	2	1	-	-	-	-	-	-	-	8	33
	After	-	-	6	5	5	6	-	1	3	3	5	1	6	41	

APPENDIX 2

MEASURES OF CENTRAL TENDENCY IN RESPECT OF *n* ACH I, *n* ACH II AND CHANGE IN *n* ACH

School	<i>n</i> Ach I				<i>n</i> Ach II				Change in <i>n</i> Ach			
	<i>N</i>	Mean	Mdn.	<i>SD</i>	<i>N</i>	Mean	Mdn.	<i>SD</i>	<i>N</i>	Mean	Mdn.	<i>SD</i>
E 2	40	6.50	7.50	7.65	32	13.65	14.50	8.02	32	6.75	6.86	8.36
E 3	35	7.43	5.50	7.61	31	17.45	19.75	8.35	31	10.42	10.08	9.14
E 4	36	3.64	3.50	5.83	30	19.50	20.17	9.67	30	15.31	14.56	8.64
E 5	45	4.67	4.18	6.35	34	6.59	6.35	7.45	34	2.41	0.50	6.28
E 6	48	3.08	1.28	7.42	45	6.56	6.33	6.92	45	3.45	4.42	5.43
C 1	45	0.57	0.00	4.32	34	2.61	1.84	5.92	34	2.86	2.47	4.99
C 2	40	3.75	7.08	5.12	38	7.05	7.00	8.65	38	3.13	3.41	7.55
Total	289	4.09	3.15	6.78	244	9.99	9.50	9.73	244	5.89	4.22	8.43

APPENDIX 3

MEAN AND S.D. OF PRE-TEST AND POST-TESTS BY SUBJECTS FOR SCHOOLS

School	Code No.	PHYSICS					
		Pre-test			Post-test		
		N	Mean	SD	N	Mean	SD
Darbar	E2	40	11.23	3.54	39	24.85	10.67
Poddar	E3	30	19.00	8.27	33	29.97	16.22
Khandelwal	E4	35	11.37	3.68	34	15.71	3.59
Jain Subodh	E5	45	14.29	5.84	39	19.08	12.64
Agarwal	E6	48	13.23	4.88	46	14.65	6.25
Pareek	C1	42	10.02	3.88	38	13.55	4.01
Manak Chowk	C2	41	12.32	4.25	39	22.64	11.00
Total		281	12.89	5.51	268	19.95	10.92

CHEMISTRY							
Darbar	E2	39	16.34	4.44	39	19.67	11.26
Poddar	E3	35	12.03	4.45	34	28.94	12.79
Khandelwal	E4	34	8.50	3.69	32	11.50	6.44
Jain Subodh	E5	38	19.89	5.37	37	24.00	10.44
Agarwal	E6	48	8.17	3.49	46	14.54	7.38
Pareek	C1	45	7.07	2.66	41	10.39	3.80
Manak Chowk	C2	41	13.32	6.09	39	28.20	12.47
Total		280	12.06	6.28	268	19.12	11.76

MATHEMATICS							
Darbar	E2	40	11.37	4.53	37	13.03	6.93
Podar	E3	25	16.72	3.65	32	26.37	16.50
Khandelwal	E4	35	7.51	2.45	32	6.66	3.63
Jain Subodh	E5	45	7.42	2.32	41	14.75	8.99
Agarwal	E6	49	9.73	10.56	44	10.73	5.09
Pareek	C1	13	6.46	2.13	12	8.25	2.45
Manak Chowk	C2	40	10.03	4.28	40	23.75	12.43
Total		247	9.84	6.29	238	15.40	11.96

APPENDIX 3a

MEAN AND SD OF SCHOOL FINAL EXAMINATION MARKS BY SCHOOLS

School	No.	Physics		Chemistry		Mathematics	
		Mean	SD	Mean	SD	Mean	SD
E2	40	33.30	12.30	37.90	10.64	30.55	15.03
E3	33	62.79	20.83	44.09	8.34	33.97	21.84
E4	36	43.64	9.34	45.97	11.24	31.36	10.23
E5	45	54.02	15.27	60.73	11.25	32.31	20.83
E6	46	40.35	15.95	40.09	16.47	34.98	16.56
C1	12	28.50	9.35	38.33	9.43	28.00	16.47
C2	39	49.21	11.38	49.41	13.26	45.69	18.61

APPENDIX 4

ASPIRATIONS BOOSTING PROGRAMME

Decisions taken by the concerned teachers for the implementation of this programme in their respective sections of Class IX.

It was decided to implement the programme as follows.

November 1965

2nd Week

1. Feedback on the psychological and objective achievement tests to pupils and their parents.
2. Over-all feedback to teachers with information about individual pupils.
3. Give Teachers' talk on results, based on the above information.

3rd Week

1. Classroom achievement testing by the respective subject teachers of the experimental classes, keeping in view the following points:
 - i) the test should be of the objective type as far as possible;
 - ii) the maximum marks should be fifty;
 - iii) the test should be of 30 minutes' duration;
 - iv) the test should cover the syllabus taught from the beginning of the current year to date.

- 4th Week
1. Teachers will examine the test copies and write appropriate evaluation statements on each script.
 2. The Progress Record form will be completed by the selected teachers for each pupil.

December 1965

1st Week The unfinished task set for the fourth week of November would be completed.

2nd Week

1. Feedback on the achievement tests to pupils and their parents through the progress record.

2. Over-all feedback to teachers.

3. Teachers' talk on the results.

4. Goal-setting by pupils.

3rd Week Same as for the third week of November, except that *the test will cover only the topics taught during the past four weeks.*

4th Week Same as for the fourth week of November.

January 1966

1st Week Same as for the last week of December 1965.

2nd Week Same as for the second week of December 1965.

3rd Week Same as for the third week of November 1965, except that the test would cover topics taught during the past four weeks (*i.e.*, from the third week of December 1965 to the second week of January 1966).

4th Week Same as for the fourth week of November 1965.

February 1966

1st Week Same as for the first week of December 1965.

2nd Week Same as for the second week of December 1965.

3rd Week Same as for the third week of November 1965, except that the test should cover topics taught during the four-month period (*i.e.*, from November 1965 to February 1966).

4th Week Same as for the fourth week of November 1965.

March 1966

1st Week

1. Feedback to pupils and their parents.

2. Teachers' talk on the results.

2nd Week Achievement re-testing in all the schools concerned in the Experimental Programmes I and II.

interesting to note that the achievement motivation in our school boys compares favourably with those of certain advanced countries. The study also provides an insight into some of the cultural factors of achievement motivation, such as a higher level of motivation in relatively lower socio-economic groups than in the middle income groups and also the relationship of motivation to certain kinds of occupations. It also provides some understanding of the relationship of achievement motivation to examination results. It must, however, be noted that the correlations are not high. The contribution of achievement motivation to learning has, therefore, neither been proved nor disproved.

The second study reports the results of the experiment with training teachers in achievement motivation and their performance. It has been found that the teachers level of achievement motivation can be raised by suitable training and that teachers find this training very useful. There is also evidence that as a result of such training the performance of students under such teachers seems to improve. However this finding is not conclusive and the study should be replicated in other states.

OTHER TITLES IN THIS SERIES

1. WASTAGE AND STAGNATION IN PRIMARY AND MIDDLE SCHOOLS IN INDIA
2. EVALUATIVE CRITERIA FOR INSPECTION AND SUPERVISION OF SECONDARY SCHOOLS
3. DEVELOPMENT OF SCHOLASTIC APTITUDE TESTS FOR GRADES VIII AND XI
4. SURVEY OF ACHIEVEMENT IN MATHEMATICS AT THREE LEVELS OF SCHOOL EDUCATION PARTS I-IV
5. A SURVEY OF SECONDARY SCHOOLS IN INDIA PARTS I-IV
6. A STUDY OF COSTS OF EDUCATION IN INDIA DURING THE PERIOD 1951-61
7. IDENTIFICATION AND INCIDENCE OF TALENT IN ELEMENTARY AND SECONDARY SCHOOLS
8. CURRICULUM AND TEACHING OF MATHEMATICS IN HIGHER SECONDARY SCHOOLS. AN ANALYSIS OF SYLLABUSES